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MESSAGE FROM THE IPPS PRESIDENT

Dear IPPS Members,

Warm greetings and very best wishes for 2016.

14th World Congress on Parasitic Plants. I am pleased to announce that the 14th World Congress on Parasitic Plants will take place on June 25-30, 2017 in Asilomar, CA, USA. Details will be posted by John Yorder who, together with his colleagues will organize the congress.

IPPS elections. As mentioned in the last issue of the newsletter, we will be holding elections to fill the offices of **Vice President**, **Secretary**, and **Member at Large**. I encourage you to nominate, vote, and be active in your society. The IPPS officers serve staggered four-year terms with about half of the Executive Committee elected every two years to maintain continuity on the Committee. The vice president, Judie Scholes, ascends to the Presidency at the end of the term. Please send me nominations for these positions by the end of **January**. Elections are expected to be held in **February**. The 'active' IPPS members who attended the 12th and/or 13th WCPP will be eligible to vote.

Parasitic plant photos. The photo library on our website has been expanding slowly but still lacks some of weedy parasites including *Striga*, *Orobanche*, *Phelipanche*, and *Alectra* spp. Photos of these important parasites should be included in the library. Please send your photos to me.

Farewell. This is the final message from me as the IPPS president. First of all, I would like to express my sincere thanks to all of the IPPS members and in particular to the Executive Committee members and the editors of Haustorium who have encouraged and supported me throughout my term. I have been fortunate enough to have chances to meet and discuss with the IPPS members at the WCPPs and also on other occasions. Although I will step down from the IPPS Presidency, I would like to continue and enjoy research on parasitic plants. So, I would like to meet and discuss with you at the next occasion, the 14th WCPP.

Koichi Yoneyama, IPPS President
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MEETING REPORTS

Meeting of COST Action FA1206.
Strigolactones: biological roles and applications.
15-18 September, 2015, Bucharest, Romania.

Presentations of greatest relevance to us here included the following.

In the lecture 'The toothpick method of *Striga* biocontrol: deployable and inexpensive for smallholder farmers'. David Sands described the successful development of effective biocontrol agents, including strains of *Fusarium oxysporum* for control of noxious weeds by selecting for natural hypervirulent variants of *Fusarium*. For *Striga* biocontrol, he used variants that excrete leucine, tyrosine and methionine, interfering with the *Striga*'s amino acid biosynthesis. These host-specific yet enhanced strains can kill their target host more rapidly, reducing the amount of inoculum needed, thus being more affordable. Three strains of the fungus *Fusarium oxysporum* f.sp. *striga*e (Foxy T14) were coated onto toothpicks and given to 500 smallholder farmers (85% women) for trials in western Kenya in 2014. Once this inoculum was co-planted with maize seeds, a decrease in *Striga* counts and an average yield increase of 43 - 56% was recorded.

Maurizio Vurro presentation, titled 'Goodness of microbes to biodegrade strigolactones was focused on seed germination. It was hypothesized that microbes could detect and biotransform strigolactones, preventing germination of parasitic weed seeds, and thus they could be used as biocontrol agents, acting as a 'physiological' barrier against parasitic weeds. To prove this hypothesis, fungi with different ecological functions were considered for their possible capability to metabolize strigolactones. Differences were observed among microorganisms, treatments and compounds used.

Peter Tóth presented 'What are the similarities in strigolactone requirements of various broomrapes during the germination?' To better establish taxonomic relationships and species identification within the Orobanchaceae the authors studied the germination of seeds of seventeen different broomrape species induced by the synthetic analogue of strigolactones, GR24. The species, *Orobanche alba, O. alsatica, O. caryophyllacea, O. crenata, O. cumana, O. elatior, O. flava, O. hederae, O. lutea, O. minor, O. pallidiflora, O.*

reticulata, Phelipanche aegyptiaca, P. arenaria, P. nana, P. purpurea and *P. ramosa* belong to the seven taxonomical subsections of the genus *Orobanche* and two subsections of the genus *Phelipanche*. Seeds of *P. aegyptiaca, P. nana, P. purpurea, P. ramosa, O. crenata, O. cumana,* and *O. minor* were highly sensitive to GR24, while *O. alba, O. caryophyllacea* and *P. arenaria* were less sensitive, and *O. alsatica, O. elatior, O. flava, O. hederae, O. lutea, O. pallidiflora,* and *O. reticulata* were irresponsive to GR24. Also, the phylogenetic analysis based on flower volatiles as a layout to compare evolutionary similarities between broomrapes in terms of requirements for germination stimulants was used.

Diego Rubiales presented 'Strigolactone content in crops: how can breeders make direct use of this to select for *Orobanche* resistance or trap crops in large segregating populations?'. This talk was focused on several different alternatives for management of *Orobanche* spp. An alternative strategy to resistance breeding could be the exploitation of suicidal germination by synthesizing and directly applying strigolactones to the field. In addition, breeding for high strigolactone exudation levels could result in more effective trap crops. Another potential application is intercropping. Inhibitory activity of accompanying inhibitory crops could be increased by selecting for increased production and exudation of such alellopathic metabolites. Any of these breeding approaches is possible by simple selection of existing variation or by various biotechnological approaches. In any case, it was suggested that a closer interaction of breeders with chemists and biochemists is needed. Recent developments in screening and analytical protocols allow a better understanding of the underlying mechanisms. However, they are still time consuming and therefore, unaffordable for breeders that need to handle massive amounts of segregating populations involving thousands of plants in order to discard most of them and to retain only the really interesting ones. Therefore, faster although sufficiently reliable throughput screenings methods are still needed.

Some other relevant papers and posters included:

Strigolactones - Chemistry and Biochemistry

Chris Mc Erlean – Synthesis of Strigolactone mimics: Outcomes and Opportunities

Francisco Macias – New Multifunctional Parasitic Weed Stimulants

Petr Tarkowski – LC - MS studies of strigolactones

Mirostrigolactoneav Strnad – Recent progress in hormonomics of strigolactone mutants and strigolactone biological chemistry

Stefano Parisotto – Strigolactones mechanism of action and distribution in living organisms: a chemical contribution

Binne Zwanenburg – New convenient route to Solanacol

Piermichele Kobauri – Development of a ligand - based pharmacophore model for predicting strigolactones activity in parasitic weed germination as well as the hormone roles in plants

Melissa Van Overtveldt – The development of isoindole based fluorescent Strigolactones

Strigolactones as Plant Hormones

Francesca Baroccio - Conceivable registration procedures for strigolactones

Strigolactones as Signals for Parasitic Plants

Alessio Cimmino and Antonio Evidente - Inuloxins: plant sesquiterpene lactones inhibiting parasitic plant seed germination.

Nada Grahovac - Examination and the role of strigolactones in sunflower resistance to broomrape.

Marco Lucio Lolli - Development of a ligand-based pharmacophore model for strigolactones involved in parasitic weed germination and in hormonal roles in plants.

Salar Torabi - Inhospitable signaling in *Lotus japonicus.*

Hianit Koltai

17th European Weed Research Society Symposium, Montpellier France, 22-26 June 2015.

Relevant papers included:
(showing presenting author only):

D. Moreau (INRA Dijon, France) -Trophic relationships between host and parasitic plants: a case study with the parasitic plant species *Phelipanche ramosa.*

S. Kabiri (Wageningen University, The Netherlands) - Exploring the life-history strategy of the facultative root parasitic weed *Rhamphicarpa fistulosa*.

R. Perronne (INRA Dijon, France) - Assessment of phylogenetic signal in the germination ability of broomrape (*Phelipanche ramosa*) on Brassicaceae hosts.

O. Acar (Canakkale Onsekiz Mart University, Turkey) - Does plant activator application help the antioxidant defence of tomato plants during broomrape infection?
H. Eizenberg (Agricultural Research Organization, I srael) - Aspects of glyphosate mechanism in Egyptian broomrape control.
D. Moreau (INRA Dijon, France) - Amino acids as orobanchicides: an innovative approach for biocontrol of broomrape weeds.
G. Economou (University of Athens, Greece) - Can the efficacy of broomrape control methods be hampered by inter- and intraspecific variability as observed in germination studies for three broomrape species?
T. Shilo (Department of Plant Pathology and Weed Research, Israel) - Aspects of glyphosate mechanism in Egyptian broomrape control.

Proceedings and abstracts are available at http://www.ewrs.org/doc/17th_EWRS_Symposium_Proceedings_Montpellier_France_2015.pdf

LITERATURE HIGHLIGHT – STRIGOLACTONE BIOLOGY

Recently, two new insights as to strigolactone biology were achieved. One is related to the function of strigolactone receptors from the parasitic plant *Striga hermonthica*. Tsuchiya et al. (2015) developed a fluorescence turn-on probe (YLGs) and used it to illuminate signal perception by the *Striga* strigolactone receptor. The strigolactones analog was shown to bind to and act via ShHTLs, the diverged family of α/β hydrolase-fold proteins in *Striga*. Notably, HTL is also named KAI2 (more on KAI2 is in Conn et al., 2015, and below). Live imaging using YLGs revealed that a dynamic wavelike propagation of strigolactone perception wakes up *Striga* seeds. It was concluded that ShHTLs function as the strigolactone receptors mediating seed germination in *Striga*. A clade of polyspecific receptors, including one that is sensitive to picomolar concentrations of strigolactone was identified. Moreover, the structure of the sensitive receptor shows an unexpectedly large ligand-binding pocket, which may explain how *Striga* manages to sense higher a concentration range of strigolactones than *Arabidopsis*. Thus, it might be that the sensitivity of *Striga* to strigolactones from host plants is driven by receptor sensitivity. Importantly, by this method a bioassay was established that can be used to identify chemicals and crops with altered strigolactone levels.

The second insight highlights the diversity of strigolactone receptors in multiple lineages of parasitic plants and their close relatives. In *Arabidopsis*, the α/β-hydrolase D14 acts as a strigolactone receptor that controls shoot branching, whereas its ancestral paralog, KAI2, mediates karrikin-specific germination responses. It was found that KAI2, but not D14, is present at higher copy numbers in parasitic plant species than in nonparasitic relatives. KAI2 paralogs were found to be distributed into three phylogenetic clades in parasitic plant species. Also, based on homology models it was found that the ligand-binding pockets of KAI2d, the fastest-evolving clade, resemble D14 and that KAI2d transgenes confer strigolactone-specific germination responses to *Arabidopsis*. It was concluded that convergent evolution has occurred to allow developmental responses to strigolactones in angiosperms and host detection in parasitic plants.

Conn, C.E., Bythell-Douglas, R.,Neumann, D, Yoshida, S., Whittington, B., Westwood, J.H., Shirasu, K,, Bond, C.S., Dyer, K.A. and Nelson, D.C..2015. Convergent evolution of strigolactone perception enabled host detection in parasitic plants. Science 349 (6247): 540-543.
Tsuchiya, Y., Yoshimura, M. Sato, Y., Kuwata, K., Toh, S., Holbrook-Smith, D., Zhang, H., McCourt, P., Itami, K. and Kinoshita, T. 2015. Probing strigolactone receptors in *Striga hermonthica* with fluorescence. Science 349(6250): 864-868.

Hinanit Koltai

CUSCUTA PENTAGONA AND *C. CAMPESTRIS*: TWO SPECIES, ONE PROBLEM OF MISTAKEN IDENTITY

'*Cuscuta pentagona*' is gradually emerging as a model organism for the study of dodders. Hundreds of studies, especially in North America, have claimed they used it. Therefore, it may come as a surprise to some that the majority of these studies were probably conducted on a different species, *C. campestris*. This is not a trivial nomenclature issue like in the colloquial "tomato-tomahto", it is a lost/mistaken identity problem with detrimental implications that go beyond a name confusion. Multiple floristic and taxonomic studies (Austin 1986; Musselman 1986; Costea and al. 2006; Stefanović and al. 2007) have indicated that *C. pentagona* and *C. campestris* are different species.

It is unclear why biodiversity sources such as USDA Plants (http://plants.usda.gov/java/), Tropicos (http://www.tropicos.org/), to name just a few, persist in maintaining that *C. campestris* is a synonym of *C. pentagona*. The objective of this brief note is to raise awareness of the situation of these two species, provide some information on how to distinguish them, and explain why it is important to do so.

The two species have evolved within the same North American group of species (section *Cleistogrammica*; García et al. 2014; Costea et al. 2015a), which may explain their morphological affinities. Full details of the intricate evolutionary history of this clade, including the fact that *C. campestris* is a hybrid species and *C. pentagona* is one of its putative progenitors, are published in the December issue of Taxon (Costea et al. 2015b). The two species can be distinguished using molecular means, but also morphologically (Fig. 1):

1. Flowers 1.4–2.1 (–2.5) mm long; calyx angled, lobes forming prominent angles at sinuses; corolla tube 0.7–1.2 mm long; capsules 1.9–2.4 × 1.6–2.5 mm ……..*Cuscuta pentagona* (Fig. 1 A–C)

1. Flowers 2.1–4 (4.4) mm long; calyx not angled (rounded), lobes not forming prominent angles at sinuses; corolla tube 1.1–2.2 mm long; capsules 1.3–3 ×1.9–3.5 mm ……. *Cuscuta campestris* (Fig. 1 D–F)

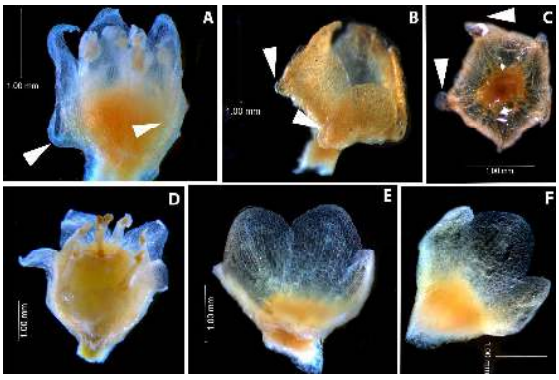

Figure 1. Morphology of flower and calyx in *Cuscuta pentagona* (A–C) and *C. campestris* (D–E). Arrows indicate the angles' resulted from overlapping calyx lobes in *C. pentagona* (which are absent in *C. campestris*). Pressed and dried herbarium specimens flowers were rehydrated using a protocol described in Digital Atlas of Cuscuta (Costea 2007 and onwards).

Flower parts, fruits, and seeds of *C. campestris* are consistently larger than those of *C. pentagona*. Although millimeter-scale differences may seem insignificant, they are the norm for distinguishing among many other *Cuscuta* species. However, the easiest to observe in this case, is the calyx morphology. In both species, calyx lobes overlap, but in *C. pentagona* they form 'angles' at the sinuses, and the calyx has a characteristic pentagonal shape (Fig. 1 B–C). In *C. campestris*, the overlapping calyx lobes do not generate these angles, and the calyx is round overall (Fig. 1 E–F). The calyx morphology is preserved even in dry herbarium specimen and can be easily observed after rehydration (Fig. 1). More images of dissected floral parts are available for both species in the Digital Atlas of *Cuscuta* (Costea 2007 and onwards).

Establishing the correct identity of species in the case of *C. pentagona* and *C. campestris* is of great pragmatic significance because the two species have a different distribution, ecology and 'behavior'. *C. pentagona* is confined to the territory of the U.S.A. and the scarcity of herbarium specimens collected in the last two decades suggests a degree of rarity at least in some of the states. This species occurs in natural habitats such as meadows, prairies, open areas in forests, and although a few specimens of *C. pentagona* were also collected from ruderal habitats (e.g., margins or roads or abandoned fields), there are no occurrences of this species as an agricultural weed or invasive plant. In contrast, *C. campestris* has become one of the most widespread agricultural dodder pests worldwide. Because most studies on *Cuscuta* try to understand various biological aspects in order to devise better strategies of prevention, control and eradication (e.g., reviewed by Dawson et al. 1994; Costea and Tardif 2006), the identity of the species studied is of paramount significance. Using material of the seemingly harmless *C. pentagona* to study a pest such as *C. campestris* would likely lead to misleading results. Fortunately, seeds of *C. pentagona* are more difficult to obtain and most of the articles claiming they used this species most likely studied *C. campestris*. However, a degree of uncertainty has been created, and since most studies are not accompanied by herbarium vouchers or other identification means, the identity of the plant material used cannot be elucidated anymore.

Cuscuta campestris is a great species to conduct research on. It germinates rapidly and reliably; its seedlings can attach to numerous host species;

selfing provides reproductive assurance and plants produce numerous seeds; the life cycle is relatively short (50–80 days), and numerous molecular tools have been developed for it. There is only one thing left to do: to know that we study it. Incidentally, the entire plastid genome (Funk *et al*. 2007) of supposedly *C. gronovii*, a dodder that belongs to another North American clade (Costea et al. 2015a), is also based on *C. campestris*. True identity matters!

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NB In the above article, the authors regretted that they were not able to illustrate the pentagonal shape of the calyx of *C. pentagona* with photographs of fresh material for lack of availability. If you can provide such pictures the editors will welcome them for inclusion in a future issue.

SYSTEMATIC STUDIES ON *CISTANCHE* SPP. AND THE HERBAL PRODUCT 'CISTANCHES HERBA'

Cistanche Hoffmg. et Link, a genus of the Orobanchaceae family, with 22 species worldwide, is mainly distributed in the arid lands and deserts in the northern hemisphere, including Xinjiang, Inner Mongolia, Ningxia autonomous regions, Gansu provinces of China, as well as Iran, India, Mongolia, etc. The *Cistanche* species are perennial parasitic herbs, and commonly attach to the roots of sand-fixing plants, such as *Haloxylon ammodendron*, *Kalidium foliatum*, and *Tamarix* spp.

There are four species and one variety of *Cistanche* in China, i.e. *Cistanche deserticola* Y.C. Ma, *C. tubulosa* (Schenk) R. Wight, (also known as *C. mongolica* Beck in China), *C. salsa* (C.A. Mey.) G. Beck, *C. salsa* var. *albiflora* P.F. Tu et Z.C. Lou, and *C. sinensis* G. Beck. 'Cistanches Herba' (CH), 'Rou Cong Rong' in Chinese, first recorded in Shen Nong's Chinese Materia Medica, the oldest work of traditional Chinese medicines, refers to the dried succulent stems of the *Cistanche* plants. CH has been regarded as a superior tonic and is honored as the 'Deserts Ginseng'. The scientific values of CH lie in the treatment of kidney deficiency, impotence, female infertility, morbid leucorrhea, profuse metrorrhagia, and senile constipation. It has been the most frequently prescribed drug and health food against kidney deficiency in China for successive dynasties. Among *Cistanche* species,

only *C. deserticola* was recorded in the Chinese Pharmacopoeia (2000 edition), but the wild resource of *C. deserticola* is on the edge of extinction due to over-harvesting, and it was listed as one of the Class II plants needing protection in China. Thus, *C. tubulosa* was then added to the 2005 edition Chinese Pharmacopoeia as an alternative, for its comparable chemical constituents, pharmacological activities, and its relative abundance in comparison with *C. deserticola*. *C. tubulosa* is similar to *C. deserticola* morphologically but differs in having rounded , rather than acuminate anther cells.

C. deserticola Photo Prof. Pengfei Tu

Pengfei Tu and his group in the School of Pharmaceutical Sciences, Peking University, China, have devoted themselves to the systematic study of *Cistanche* for more than 20 years to clarify in depth the active components and the underlying mechanisms, to screen out new activities, to cultivate the *Cistanche* herbs and their hosts, to address the deficiency of the natural resources and to protect the deserts for their benefit.

Their achievements may be listed as follows:

From in-depth phytochemical investigations of *Cistanche* plants more than 150 compounds have been isolated and identified, including 32 new ones. It is noteworthy that attention was paid to the polysaccharides in *C. deserticola* for the first time. A total of 17 new polysaccharides were purified, and six were found to have immunologic competence.

C. tubulosa – as cultivated - flowering for collection of seed Photo Prof. Pengfei Tu

C. tubulosa – exposed in trench for harvesting. Photo Prof. Pengfei Tu

Extensive pharmacological activity evaluations have been performed on the crude extracts as well as the purified compounds from *Cistanche* plants towards anti-kidney deficiency, anti-constipation, anti-aging, myocardial protection, etc. The underlying molecular mechanisms have been disclosed using various cellular and animal models. The promising possibility of phenylethanoid glycosides (PhGs) for the treatment of Alzheimer's, Parkinson's, and coronary artery diseases has been indicated for the first time, expanding the traditional usages of CH. In addition, 17 neuroprotective metabolites have been isolated and identified from the biological samples following the administration of CH extract and single compounds, and their kinetics *in vivo* have also been characterized.

A new drug against vascular dementia has been developed from the total PhGs of *C. tubulosa* and a new drug certificate was obtained from the China Food and Drug Administration (FDA) in 2005. Recently, echinacoside, the primary effective

constituent of *C. tubulosa*, was made the subject of an Investigational New Drug Application to CFDA of China. In addition, serial health products have been developed from CH.

Simultaneous determination of several chemical markers along with fingerprinting has been accomplished using HPLC and LC-MS. Chemical and quality investigations have been carried out to screen the suitable planting areas, harvest times and processing methods for CH. *C. tubulosa* as an alternative source of CH was recommended and finally included in Chinese Pharmacopoeia (2005 edition), efficiently addressing the scarcity of *C. deserticola*. Moreover, the official quality standard of CH in Chinese Pharmacopoeia has been improved since the 2010 edition, based on the research work performed by Prof. Tu's group.

The species, distribution and production of the genus *Cistanche* in China have been investigated and meaningful advice provided regarding resource protection and sustainable utilization of the natural resources of *Cistanche* plants. The biological characteristics of *C. deserticola*, *C. tubulosa,* and their hosts have been systematic illustrated, providing a basis to advance the cultivation technologies.

Efforts have been addressed to the cultivation technologies of *C. deserticola*, *C. tubulosa* and their hosts. Inductive agents for seed germination and inoculation agents were selected from various candidates; the methods for nutrition mediation, paper inoculation, and the determination of the seed germination ratio were developed and the quality standard of the seeds was established. Furthermore, the standard operating procedure for cultivation and the demonstration bases for *C. deserticola* and *C. tubulosa* were also established.

In order to solve the resource shortage of Cistanches Herba and conserve the desert habitats, Prof. Tu's group has cultivated *Haloxylon ammodendron* in the deserts of Alxa in Inner Mongolia over 100,000 ha and inoculated *C. deserticola* on 20,000 ha. They have also cultivated *Tamarix* spp in Kotan, Xinjiang over 26,000 ha and inoculated *C. tubulosa* on 20,000 ha. The practice of this project respects the desert and creates a new model of sustainable desert conservation in Chinese style, contributing greatly to the improvement of the local environment, economic development and the security of minority areas.

In 2014, the output of fresh *C. tubulosa* was 10,000 tons in Yutian county, Xinjiang, and sales amounted to 100 million (RMB) yuan. In 2015, the output was 150,000 tons and the sales were 130 million (RMB) yuan.

Serial publications have been released, including 147 articles and 15 patents (including 3 international patents). In particular, 2 new drug certificates related to this project have been granted.

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PRESS REPORTS

Boost the odds after cancer by reducing stress and focusing on healing (abridged)

Reducing stress and making lifestyle changes can yield remarkable results

You can help your body fight cancer by reducing stress and focusing your efforts on healing. One of the most comprehensive intervention studies in cancer research, published in Archives of General Psychiatry, evaluated the effects of stress-management techniques such as relaxation on cancer recurrence following removal of a malignant melanoma. Not only did members of the relaxation group experience reduced psychological distress, they also had more active immune systems than those in the control group. A six-year follow-up showed a trend toward greater recurrence and higher mortality rates in the control group compared to the relaxation group. The bottom line is that patients who focus on reducing stress and healing have a better prognosis. People also have lower rates of developing cancer in the first place if they follow these practices. Given what we know about the connection between immune function and stress—as reported in the journal Cancer—this is not surprising.

The aggressive conventional treatments that patients receive often do a good job of killing cancerous cells. The problem is that these same therapies also leave the immune system severely weakened at a time when you need it to be strong. You must have a well-functioning immune system

to patrol your tissues and identify abnormal cells before they have an opportunity to manifest as a clinical disease. The first year after being told you're in remission is the most important time to support your immune system. There are many natural therapies and lifestyle changes that can be done.

Mistletoe therapy is just one thing that can be used to effectively boost the immune system. Mistletoe has been shown in the journal Cancer Letters to stimulate increases in the number and the activity of several types of white blood cells. Immune-system-enhancing cytokines such as interleukin-1, interleukin-6, and tumour necrosis factor alpha are released by white blood cells after exposure to mistletoe extracts, according to research by Tibor Hajtó published in Oncology and Cancer Research. It is also possible to make simple dietary changes that can significantly reduce inflammation and further support the functioning of the immune system.

Patients need continued support after they are treated for cancer. They need to be supported mentally and physically in order to further reduce the risk of recurrence. Naturopathic doctors excel at providing this much-needed support to patients and helping them get back on the path to wellness.

Adam McLeod. The Georgia Straight
October 21st, 2015

Miracle mistletoe saved my life, says cancer sufferer given weeks to live 10 years ago

Xavier Granier, 79, was given just weeks to live 10 years ago. He claims the plant more normally associated with furtive Christmas kissing has given him a fresh lease of life. When doctors at Aberdeen Royal Infirmary told him his throat cancer was terminal, he refused to accept the bleak news. Instead he opted to undergo radical mistletoe treatment, an alternative therapy he credits with lengthening his life. He had injections of a special mistletoe solution three times a week for five years and is now in remission.

Xavier - who moved to Aberdeen from France where he was born - said: 'I think that my body and perhaps my brain never really accepted the promised death and the mistletoe boosted this resistance. 'Either way the extra time I have with my grandchildren is a joy.'

The cancer was diagnosed in 2004 after the former maintenance engineer developed a hoarse voice. Despite extensive medical treatment, the cancer would not be beaten. A suggestion to try Dr Stefan Geider at the Camphill Wellbeing Trust, Aberdeen, followed, launching the mistletoe treatment. Xavier's recovery was deemed so remarkable, the details were published in the prestigious medical Journal of Laryngology and Otology.

Mistletoe in medicinal form is thought to work by improving patients immune systems allowing them to fight cancer. 'Mistletoe is not a miraculous cure,' said Dr Geider. 'However, the majority of the patients we see tell us that they experience an improved quality of life. 'For some, like Xavier, it appears that mistletoe therapy also increases life expectancy. 'Mistletoe therapy is one of the most frequently-prescribed complementary therapies for cancer in central Europe. 'It has a good safety record but we desperately need more research to discover exactly how mistletoe works and for which cancers it might improve outcomes.' Although mistletoe treatment is in its infancy in the UK, it has been used in other parts of Europe for years and is prescribed to around half of cancer sufferers in Germany.

The average cost of treatment is £1,000 a year. It is only available on prescription.

Siobhan McFadyen and John Jeffy, The Mirror
13th September, 2015

Gates Foundation supports KAUST with $1.5 million for parasitic weed research in Africa

Research aims to enhance food security for millions in Africa

The Bill & Melinda Gates Foundation has approved funding of $1.5 million for King Abdullah University of Science and Technology (KAUST) to conduct scientific research towards eradicating a destructive parasitic weed in croplands throughout sub-Saharan African countries.

Commonly known as 'witchweed', the *Striga hermonthica* weed destroys millions of hectares of crops in sub-Saharan Africa every year by siphoning off valuable water and nutrients. Considered one of the hardest parasitic plants to control, *Striga* infestation devastates much-needed cereal yields, depriving rural families across the

region of much of their livelihood. Solutions for eradicating and combating *Striga* are greatly needed, particularly for pearl millet.

Dr. Salim Al-Babili, who is leading this effort at KAUST, explained: 'Pearl millet is the staple food crop for millions of rural families in semi-arid regions of Africa, Asia and the Middle East. *Striga* can destroy an entire year's cereal yield, causing billions of dollars in losses every year. Additionally, *Striga* is becoming more severe due to climate change conditions. This project aims to provide lifesaving *Striga* control methods to enhance food security in the region and potentially in other parts of the world.'

Building on his expertise gained from his work on golden rice, Al-Babili is teaming up with universities in Burkina Faso, Japan, and the Netherlands, to shed light on the biological compounds in pearl millet involved in the infestation and to identify low-cost methods for reducing and eventually eliminating *Striga* seed banks in infested soils.

Hassan Al-Damluji, Head of Middle East Relations at the Bill & Melinda Gates Foundation, commented: 'Our generation faces an unprecedented global challenge of feeding 9 billion by 2050 and we see Africa's farmers as one of the key solutions to this problem. But when seven out of ten people living in sub-Saharan Africa are farmers, it's clear that they will require more support to address issues like *Striga* infestations in order to not only increase productivity, but grow more nutritious food for their families and communities. Investing in Africa's farmers requires strong global partnerships, and this is why we are very pleased to collaborate with KAUST, an institution ranking among the world's leading universities in the fields of agricultural and biological science. Through this partnership, we look forward to supporting *Striga*-prone areas of sub-Saharan Africa and enabling Africa to be able to feed itself - and help feed the world - within a generation.'

AAAS
1 December 2015.

BOOK REVIEW

Parasitic Orobanchaceae: Parasitic Mechanisms and Control Strategies. 2013. Edited by Joel, D.M., Gressel, J and Musselman, L.J., Heidelberg, Germany: Springer. 500 pp. Full price Euro 150; £ 135; $209. Also available electronically – see: http://www.springer.com/life+sciences/plant+sciences/book/978-3-642-38145-4 (We apologise that we were unable to arrange this review sooner.)

This is the most comprehensive book about the biology of, and control strategies for, the parasitic plants in the family Orobanchaceae. Weedy parasitic Orobanchaceae species such as witchweeds (*Striga*) and broomrapes (*Orobanche* and *Phelipanche spp*). have devastating effects on world agriculture. It is important to uncover the underlying biology of their parasitism, so that affective management strategies can be developed. However, this book has a much broader scope than the understanding of plant parasitism for weed management. The 26 Chapters, each of which was written by leading scientists, have successfully highlighted the fascinating biology of these parasitic plants, despite their noxious behaviors. Since the hemiparasitic species that were previously placed in the Scrophulariaceae were reclassified into the Orobanchaceae family about a decade ago, the Orobanchaceae now represents the largest family of parasitic plants. The Orobanchaceae is recognized as a model parasitic family that includes species showing various levels of host dependency, from non-parasites to facultative hemiparasites, obligate hemiparasites, and holoparasites. Recent advances in molecular and genomic technologies have significantly contributed to studies of parasitic mechanisms, evolution, and genomics in this family.

The main body of the book is divided into two parts. Part 1 contains cutting-edge information about all aspects of parasitism, including the structure, development, and function of the haustorium; nutrient transfer and the physiology of the parasite-host association; host reactions to parasitic plants; seed production and germination; the strigolactones and host-parasite signaling mechanisms; the parasite genome, phylogenetics, evolution, and epigenetics; and parasite ecology. Part 2 is dedicated to the weedy species and their management: the problems posed by the weedy parasites; population diversity and dynamics; molecular diagnosis of seed banks; and a detailed discussion of the various management strategies, including agronomic, chemical and biotechnological approaches, host breeding for resistance, allelopathy, and biological control. Each chapter provides the newest information about its

subject, along with a comprehensive background and thoughtful discussions.

The book contains micrographs and schematic models of haustoria in various species. The haustorium is a common organ in all parasitic plants, but it shows diversity in its structures and functions in various species. For example, haustoria may be terminal or lateral, and they may invade xylem or phloem tissues. A better understanding of the commonalities and differences among various parasitic plants will provide clues about the fundamental roles of the haustorium in parasitism.

Details on the germination strategies of obligate (mainly weedy) parasites are described in Chapters 8 to 12. Unlike facultative parasites, the obligate parasites only germinate in the vicinity of host roots. Strigolactones have been known as germination stimulants for obligate parasites in the Orobanchaceae for half a century, and became a topic of interest for plant science research after the recent discovery of their function as endogenous phytohormones. Studies of the molecular mechanisms of strigolactone biosynthesis and signaling, together with studies on the structure and physiology of the parasite seeds, have provided new clues about the unique germination patterns of parasitic weeds. It may be possible to exploit these features for weed management. Chapter 12 describes the karrikin perception system in *Arabidopsis*. Karrikin is a compound that shares structural similarity with strigolactones and is a germination stimulant for some plants but not those in the Orobanchaceae. The chapter predicted the recent discovery of strigolactone receptors in weedy parasites that are indeed paralogues of the karrikin receptor in *Arabidopsis* (Conn et al., 2015; Tsuchiya et al, 2015).

Technical and theoretical information about control strategies are provided in Part 2. This part also emphasizes the rapid host shifts of parasitic plants and the diversity of seed populations, which easily leads to the breakdown of host resistance. Each chapter consolidates the importance of combining multiple management strategies, since no single strategy can provide resistance to the parasite in long-term. There is a need to develop novel parasite resistance strategies.

In addition to the detailed information about parasite biology, this book contains insightful discussions by each scientist. These discussions often contain cross-references to other chapters of the book so that readers can follow one subject from a different point of view.

All authors are to be congratulated for their contributions to this valuable book. This book is a 'must have' for scientists, students, and breeders who are interested in, or affected by, parasitic plants. This book will contribute to numerous future studies on the elucidation of plant parasitism and ultimately to eliminate these devastating weeds.

Satoko Yoshida,
RIKEN Yokohama Institute, Japan

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THESIS

Elucidation of strigolactone biosynthesis in the host plant rice and the signal perception in the parasitic plant *Striga hermonthica.* Yanxia Zhang PhD thesis, Wageningen University, Wageningen, Netherlands. 210. Promoter Dr Harro Bouwmeester 210 pages.

Strigolactones (SLs) are an important class of plant signalling molecules with in- and external functions, above- as well as belowground. In Chapter 1 I introduce the SLs, their structural diversity, biosynthesis and perception and their rhizosphere role as signalling molecules that stimulate hyphal branching in arbuscular mycorrhizal (AM) fungi, a process that is beneficial for the establishment of an efficient symbiosis between the fungus and its host. Unfortunately, the SLs also induce the germination of root parasitic plants, such as *Striga hermonthica*. As a survival strategy, seeds of these parasitic plants will only germinate when they perceive this germination signal from their host which is betraying its presence. After germination, the parasitic plants attach to the host root by forming a root invasive organ called haustorium, through which water and nutrients are taken up from the host. This causes tremendous yield losses in crops worldwide. Just quite recently it was discovered that the SLs are also newly identified phytohormones with multiple physiological roles in various plant developmental processes, such as the regulation of shoot branching and root architecture. This new role has tremendous implications for the evolution of parasitism and complicates control measures based on altered strigolactone production by crops. Rice (*Oryza sativa*) is an important cereal crop supplying food to more than half of the world population. Rice also

secretes SLs into the rhizosphere which is taken advantage of by *Striga*. Understanding the mechanism of how SLs are synthesised in the host plant rice and perceived by the parasitic plants is important for the management of root parasitic weeds in agriculture. The objective of my work was to gain more insight in the biosynthetic pathway of the SLs in the host plant rice and the molecular mechanism of signal perception in the parasite *Striga*. To achieve the first objective, I used a genetic approach to map quantitative trait loci (QTL) related to SL production using an F6 recombinant inbred line (RIL) population of Bala x Azucena (Chapter 3). I showed that the susceptibility to *Striga* infection correlates with the SL levels in the host plant, with the lowest *Striga* emergence occurring with the low SL producing parent line Bala. A major QTL (qSLB1.1) for *Striga* germination, production of SLs *ent*-2'-*epi*-5-deoxystrigol (*ent*-2'-*epi*-5DS) and orobanchol and several other SL related traits was identified on rice chromosome 1. Subsequent molecular analysis of this QTL region revealed the presence of a rearrangement in the genome of Bala, causing a natural deletion of two rice cytochrome P450 (CYP) *MAX1* homologues, *Os01g0700900* (*Os900*) and *Os01g0701400* (*Os1400*). *Arabidopsis MAX1* has been reported to play a role in SL biosynthesis and in order to investigate whether this also holds for the rice *MAX1* homologs, we used a complementation approach and transformed *Arabidopsis max1* and Bala with these *MAX1* homologues (cloned from Nipponbare). Both genes rescued the branching phenotype of *Arabidopsis max1* and in Bala increased the level of the SL, *ent*-2'-*epi*-5DS, confirming the strong association of SL production with these two rice *MAX1* homologues.

Subsequently, I characterized the biochemical function(s) of these two CYP proteins in SL biosynthesis by reconstitution of the SL biosynthetic pathway in *Nicotiana benthamiana* (Chapter 4). Previously, the biochemical evidence of the sequential involvement of *DWARF 27* (*D27*), *CAROTENOID CLEAVAGE DIOXYGENASE 7* and *-8* (*CCD7* and *CCD8*) in the biosynthesis of the SL precursor carlactone (CL) from all-*trans*-β-carotene had been provided. Transient overexpression of these genes in *N. benthamiana* leafs, resulted in the production of CL. Co-expression of the *MAX1* ortholog *Os900*, which was identified in the SL QTL mapping study, with this set of CL biosynthetic genes, resulted in the consumption of CL to form predominately the SL *ent*-2'-*epi*-5DS, suggesting that *Os900* is involved in the ring closure of CL to form SL. Intriguingly, the second rice *MAX1* homologue from the SL QTL region, *Os1400*, was found to be stereo-selectively converting *ent*-2'-*epi*-5DS to orobanchol. This is the first enzyme involved in SL structural diversification that is identified.

As SLs are secreted by host plants to the rhizosphere where they stimulate germination of root parasitic plant seeds, it is of great importance to study why parasitic plant seed germination largely depends on SL signalling and how these molecules act during this process. In Chapter 5, I show the conservation of the SL biosynthesis genes (*CCD7* and *CCD8*) in *Striga*. Although in our study we observed that the SL profile identified in *Striga* mirrors the SL profile of its hosts and is thus not conclusive in answering the question whether *Striga* produces SLs, fluridone treatment of *in vitro* grown *Striga* plants (without host) resulted in increased shoot branching, suggesting the inhibition of endogenous SL production. Subsequently, I characterized the homolog of the SL signalling component F-box protein MAX2 from *Striga*, ShMAX2. ShMAX2 showed the capacity to restore various characteristic *Arabidopsis max2* mutant phenotypes, including shoot branching, primary root length, high irradiance response (HIR) and seed germination upon GR24 application under optimal light conditions. However, ShMAX2 was not able to complement the Very Low Fluence Response (VLFR) of *max2* mutant seed germination. Together these results start to shed light on the question why *Striga* needs exogenous SLs for its seed germination. Finally, I discussed several intriguing questions that are related to the main findings of this thesis, which are important for understanding the biosynthesis and signal transduction of SLs (Chapter 6). Taken together, as a breakthrough, this thesis provides the first scientific evidence of how the SL *ent*-2'-*epi*-5DS is formed and how this molecule is converted to orobanchol, representing the first identified SL diversification step in the host plant. Furthermore, this thesis identified the first SL signalling component, ShMAX2, from a root parasitic plant species, which is paving the way for furthering our understanding of how SLs are perceived by the parasites. The knowledge gained can likely also be used to improve crop breeding or design for parasitic weed resistance.

EWRS WORKING GROUP: PARASITIC WEEDS

Dear Colleague,

As the coordinator of the Working Group 'Parasitic Weeds' within the EWRS, I am conducting a quick survey of individuals within the scientific community (mainly European) that have worked in the past (or hopefully are still working) on different aspects of parasitic weeds (management, biology, physiology, etc.). The idea is to renew the interest in those topics at the European level (and within the EWRS, too!), and to organize a more interactive group, with a mailing list, more frequent contacts, and possibly the opportunity to meet at workshops and conferences. In the last years the presence of such topics at the EWRS meetings have slowly decreased, despite the great interest of the scientific community and the great impact of parasitic weeds in the agriculture, all over the World. As you might know, there are several 'communities' interested to different subjects related to parasitic weeds, e.g. IPP Society, COST STREAM, World Congress on Parasitic Plants, World Congress on Strigolactones, but none of them is specifically oriented to approaches and research for effective parasitic weed management.

In this first round of contacts I would be very glad if you could just send an e-mail to me at maurizio.vurro@ispa.cnr.it and let me know if you are working on parasitic weeds, and if you would like to join this free group. If you wish, it would be great (if you have not yet done) if you could register to the mailing list to the following website: http://srv00.area.ba.cnr.it/mailman/listinfo/parasiticweeds or by sending an e-mail directly to me.

Moreover, I would be glad if you could supply me with a few names of colleagues that could be interested to join the group, with their e-mail address, or directly pass this information (or the whole newsletter) to other colleagues potentially interested in these subjects.

Once I collect this general information I will circulate a more informative mail (probably a sort of questionnaire) and some ideas on possible future initiatives. Please also consider that the mailing list is a moderated one. This means that no spam will circulate through it, and that colleagues can deliver (after my approval) messages to the whole group, regarding information (e.g. announcements, delivery of new publications, requests, etc) related to parasitic weeds.

Currently, there are over 120 colleagues already registered to the mailing list.

Thank you in advance for your interest.

I wish you all the best, and look forward to hearing from you.

Maurizio Vurro maurizio.vurro@ispa.cnr.it

ERRATUM: 'ADVANCES IN PARASITIC WEED RESEARCH'

In the last issue of Haustorium this was referred to as a 'new journal' , which is not strictly true. It is rather a special issue within the New Frontiers postings. For more information see: http://journal.frontiersin.org/journal/plant-science/section/crop-science-and-horticulture

VIDEOS

How African rice farmers can reduce *Striga* problems in their crop

A farmer-to-farmer instruction video on the parasitic weed *Striga* and soil management in upland rice has been produced by the Africa Rice Center (AfricaRice) and its partners as part of the African Development Bank-funded project 'Support to Agricultural Research for Development of Strategic Crops in Africa (SARD-SC).

Striga is a widespread problem in upland rice in sub-Saharan Africa. The video explains the agronomic principles that help rice farmers to reduce *Striga* problems in their crop. The 21-minute video shows four different principles that contribute to a reduction in *Striga* infestation:

1. Crop rotation or intercropping, including leguminous species
2. Direct seeding in previous crop residues without soil tillage
3. Fertilizing the soil with chemical and organic fertilizers, and
4. The use of a *Striga*-resistant rice variety

The first three practices also strongly benefit soil conservation and soil fertility. Farmers describe in their own words their experiences with these practices and explain why and how it is done.

The video is a product of a close collaboration among AfricaRice, the French agricultural research for development organization (CIRAD), the national program of Madagascar (FOFIFA) and the Association of Direct Seeding in Madagascar (GSDM). The video is available in five languages, English, French, Malagasy, Swahili and Portuguese on AfricaRice YouTube site:

Striga Management -- https://youtu.be/EguvQQDV1Wo
·La gestion du *Striga* -- https://youtu.be/AHENJmVfCZM
·Ady aminy *Striga* – https://youtu.be/arn5AstS0Jo
·Udhibiti wa viduha -- https://youtu.be/n3rMGOh3QVU
·Maneio de *Striga* -- https://youtu.be/AyQL21x7ObU

Yellow witchweed (*Alectra vogelii*) on cowpea

A short video describing the life cycle of *Alectra vogelii* and the damage that it can cause to cowpea. And indicating VULI AR1 and VULI AR2 as resistant varieties available in Tanzania. Available with commentaries in English: https://www.youtube.com/watch?v=R9TB7M9SUHE
or in Swahili: https://www.youtube.com/watch?v=B8jMXIvUGBM

POSITIONS AVAILABLE

Post-doc position available at KAUST

A postdoctoral position in Plant Biochemistry and Metabolism is currently available in the Center for Desert Agriculture at King Abdullah University of Science and Technology (KAUST, for further information about the University, please visit our website: www.kaust.edu.sa). We are looking for an excellent candidate with proven experience in LC-MS and the isolation and quantification of biological compounds. Experience in enzymology is a plus.

Our group is interested in the formation and biology of isoprenoid derived plant hormones, particularly strigolactones (see Alder *et al*., 2012 *Science* 335, 1348-1351). Using combined enzymology-based and genetic approaches, we want to identify novel plant signaling molecules related to abiotic stress and plant development.

The post will require: Strong work ethic and close attention to detail: Ability to work independently and as part of a research team: Proven record of scientific and technical publications: Excellent English writing, communication and inter-personal skills.

Required qualifications: PhD in biochemistry, metabolomics or enzymology

For more information and application form, please contact Prof. Dr. Salim Al-Babili, e-mail: salim.babili@kaust.edu.sa

Asilomar Bio – combating parasitic weeds

Asilomar Bio are developing a non-toxic product that can be applied to infested fields to eliminate parasitic weeds. They are advancing this research with the support of the Bill and Melinda Gates Foundation, with field trials in Kenya and Uganda.

They are seeking to fill three posts related to this and other projects.. These are:

Field Trial Manager - Agronomy Team
Research Associate – Chemistry Team
Research Associate – Plant Science Team

For further information go to: http://www.asilomarbio.com/careers
And/or send a resume and brief description of interest to Travis Bayer (t.bayer@asilomarbio.com).

FORTHCOMING MEETINGS

International Conference on Pulses. Rabat, Morocco, 13-15 April, 2016. For more information see: http://www.icarda.org/sites/default/files/u158/Pulses_brochure.pdf

7th International Weed Science Congress 19-25 June 2016, Prague, Czech Republic. Sessions will include: Parasitism - mechanisms and molecular basis; Distribution and impact of parasitic weeds. Control of parasitic weeds. For those who were not able to submit an abstract in time, the registration **site** will be open again in mid February 2016 with the possibility to submit an abstract for poster presentation. If you are interested in doing so, please, send your contact information to the congress secretariat (e-mail address: iwsc2016@guarant.cz) and we will

remind you as soon as the registration site opens again. This possibility is intended only for authors who did not submit any abstract yet. For more information see: http://www.iwsc2016.org/topics/

Mistletoes: Pathogens, Keystone Resource, and Medicinal Wonder. Southern Oregon University, Ashland, Oregon, USA July 17-22, 2016.

The meeting is convened under IUFRO programme Unit 7.02.11 – 'Parasitic flowering plants in forests' - and will cover systematics, ecology, pharmacology, economics, wildlife, management, host parasite interactions, etc. The organizing committee is inviting interested people to submit abstracts for consideration in oral and poster sessions. Deadline for abstracts March 15. Registration will open April 1st. The organizing committee includes: David Shaw, USA, Marcelo Wagner, Argentina, David Watson Australia, Simon Shamoun, Canada, and Robert Mathiasen, USA.

Ashland is near the California border area where mistletoes in the Viscaceae (*Arceuthobium, Phoradendron*) are abundant and important to forest ecology and management. Two full day field outings are planned to natural areas, managed forests, national forests, and national parks. The region is very diverse with high plant endemism.For further detail see the IUFRO website: http://www.iufro.org/science/divisions/division-7/70000/70200/70211/

Second International Legume Society Conference, Tróia, Portugal, 11-14 October, 2016. For more information see: http://www.itqb.unl.pt/meetings-and-courses/legumes-for-a-sustainable-world

14th IPPS World Congress on Parasitic Plants. Asilomar Conference Grounds in Pacific Grove California, USA, June 25-30, 2017. Details will be available via the IPPS website in due course.

GENERAL WEB SITES

For individual web-site papers and reports see LITERATURE

* these websites may need copy and paste.

For information on the International Parasitic Plant Society, past issues of Haustorium, etc. see: http://www.parasiticplants.org/

For past and current issues of Haustorium see also: http://www.odu.edu/~lmusselm/haustorium/index.shtml

For the ODU parasitic plant site see: http://www.odu.edu/~lmusselm/plant/parasitic/index.php

For Dan Nickrent's 'The Parasitic Plant Connection' see: http://www.parasiticplants.siu.edu/

For the Parasitic Plant Genome Project (PPGP) see: http://ppgp.huck.psu.edu/ *

For information on the new Frontiers Journal 'Advances in Parasitic Weed Research' see: http://journal.frontiersin.org/researchtopic/3938/advances-in-parasitic-weed-research

For information on the EU COST 849 Project (now completed) and reports of its meetings see: http://cost849.ba.cnr.it/ *

For information on the COST/STREAM conference see: http://streamisrael2013.wix.com/stream-israel-2013

For information on the EWRS Working Group 'Parasitic weeds' see: http://www.ewrs.org/parasitic_weeds.asp

For a description and other information about the *Desmodium* technique for *Striga* suppression, see: http://www.push-pull.net/

For information on the work of the African Agricultural Technology Foundation (AATF) on *Striga* control in Kenya, including periodical 'Strides in *Striga* Management' and 'Partnerships' newsletters, see: http://www.aatf-africa.org/

For Access Agriculture (click on cereals for videos on *Striga*) see: http://www.accessagriculture.org/ *

For The Mistletoe Center (including a comprehensive Annotated Bibliography on mistletoes up to 1995, but apparently incomplete since then) see: http://www.rmrs.nau.edu/mistletoe/

For information on future Mistel in derTumortherapie Symposia see: http://www.mistelsymposium.de/deutsch/-mistelsymposien.aspx

For a compilation of literature on *Viscum album* prepared by Institute Hiscia in Arlesheim, Switzerland, see: http://www.vfk.ch/informationen/literatursuche (in German but can be searched by inserting author name).

For the work of Forest Products Commission (FPC) on sandalwood, see: http://www.fpc.wa.gov.au (Search *Santalum*)

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***indicates web-site reference only**

Items in bold selected for special interest.

Items in blue relate to therapeutic uses of parasitic Plants.

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Abdallah, H.M., Farag, M.A., Abdel-Naim, A.B., Ghareib, S.A. and Abdel-Sattar, E.A. 2015. Mechanistic evidence of *Viscum schimperi* (Viscaceae) antihyperglycemic activity: from a bioactivity-guided approach to comprehensive metabolite profiling. Phytotherapy Research 29(11): 1737-1743. [*V.schimperi* is known in Saudi Arabia for its anti-diabetic properties. This study concluded that oleanane triterpenes and *O*-caffeoyl quinic acid conjugates were the major compounds that might account for the antihyperglycemic effect of the plant.]

Abdullahi, Z., Anuka, J.A., Salawu, A.O. and Hussaini, I.M. 2015. *In-vivo* antiplasmodial activity of methanol whole plant extracts of *Tapinanthus dodoneifolius* (DC) Danser in mice. African Journal of Pharmacy and Pharmacology 9(37): 936-942. [Results suggest the presence of pharmacologically active constituents in the extract from *T. dodoneifolius with* activity against *Plasmodium berghei* that justifies its use in malaria ethno-medicine.]

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Alakesh Phukan and Bolin Chetia. 2015. Green synthesis, catalytic and antibacterial activity of silver nanoparticles synthesized from *Olax acuminata*. Asian Journal of Chemistry 27(12): 4549-4552. [Describing the preparation of silver nanoparticles using *O. acuminata* leaf extract and demonstrating activity against 4 bacteria including *Staphylococcus aureus*.]

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listed among sources of herbal cosmetics in Pakistan.]

Amirthaveni, V., Pakeerathan, K., Thirukkumaran, G. and Mikunthan, G. 2012. Parasitic potential-host range of *Cuscuta* sp. and its impact on *Allium cepa* L. grown in Jaffna. In: Wijeratne, W.M.M.P. (ed.) Proceedings of the International Symposium on Agriculture and Environment, Ruhuna, Wellmadama, Matara, Sri Lanka, 29 November, 2012: 130-132. [Describing successful parasitisation of onion at 2 and 4 weeks by unspecified *Cuscuta* sp. (probably *C. campestris*?). Also noting *Brassica oleracea* and *Raphanus sativus* as 'non-hosts'.]

Amon, A.E., Soro, D., Koffi, A.A., Assi, J. and Traore, D. 2015. The Loranthaceae (mistletoe) hemiparasites vascular trees and shrubs agroecosystems of the Sud-Comoé Region, dense evergreen forest area of Cote d'Ivoire. International Journal of Plant, Animal and Environmental Sciences 5(3): 4-15. [Seven Loranthaceae recorded on over 100 host species, *Tapinanthus bangwensis* and *Phragmanthera capitata* the commonest. Mainly on cocoa and rubber but also on coffee. Farmers use mechanical control methods only.]

André, S., Classen, B., Gabius, H.J. and Butterweck, V. 2015. Studies on unprocessed and acid-treated arabinogalactan from larch as an inhibitor of glycan binding of a plant toxin and biomedically relevant human lectins. Planta Medica 81(12/13): 1146-1153. [Studies involving lectin from *Viscum album*.]

Andreo-Jimenez, B., Ruyter-Spira, C., Bouwmeester, H.J. and Lopez-Raez, J.A. 2015. Ecological relevance of strigolactones in nutrient uptake and other abiotic stresses, and in plant-microbe interactions below-ground. Plant and Soil 394(1/2): 1-19. This review presents the different roles of strigolactones below-ground, emphasizing phosphorus uptake by the plant by regulating root architecture and the establishment of mutualistic symbiosis with arbuscular mycorrhizal fungi. The agronomical implications of strigolactones below-ground and their potential use in sustainable agriculture are addressed.]

Anton, G.F., Joiţa-Pącureanu, M. and Cucereavii, A. 2015. Diversification of sunflower germplasm for different economically important characteristics. Scientific Papers - Series A, Agronomy 58: 123-127. [A general review, noting that after 5 generations of self-pollination, some hybrid populations presented good resistance to *Orobanche cumana*.]

Antonova, T.S., Alonso, L.C., Strel'nikov, E.A. and Araslanova, N.M. 2015. Stimulating effect of the root exudates of sorghum, millet, and Sudan grass on the seed germination of broomrape (*Orobanche cumana* Wallr.) infesting sunflowers in Russia. Russian Agricultural Sciences 41(5) 347-351. [A laboratory study suggesting that 3 samples of sugar sorghum, two samples of Sudan grass, and five cultivars of common millet stimulated the germination of *O. cumana* and could be suitable as trap crops.]

Armenia, N., Hercegovina, Gustinanda, D., Salasa, A.N., Yuliandra, Y. and Friardi 2015. Acute and delayed toxicity studies of *Cassytha filiformis* defatted ethanolic extract. World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS) 4(10): 155-162. [Concluding that the defatted ethanolic extract of *C. filiformis* is toxic and produced delayed toxicity in mice.]

Arumugam, R., Venkatesalu, V. and Rajkumar, R. 2015. Characteristic variation in pigment composition, photosynthetic carbon assimilation and phytonutrients content of *Dendrophthoe falcata*, a hemiparasite growing on host trees of saline and non-saline environments. Russian Journal of Plant Physiology 62(5): 641-646. [The rate of photosynthesis of *D. falcata* was lower on the mangrove *Rhizophora mucronata* than on the leguminous *Albizia lebbeck*.]

Ayres, D.R., Fleishman, E., Launer, A., Lee, A.K. and Zippin, D. 2015. Genetic structure and demography of *Chloropyron palmatum*, an endangered annual plant. Madroño 62(3): 139-149. [Studies of *C. palmatum* (previously *Cordylanthus palmatus*) and *C. molle* in saline and alkaline wetlands in California confirm they are genetically distinct and do not usually hybridise.]

Babu, R., Saunshi, S. Guled, S.,Rajput, R. and Sajjanar, G. 2015. Management of *Striga* scourge in sugarcane – Lessons from strategic participatory research. Proc.Volume II 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 135. [Noting severe infestations of *S. asiatica* in major cane growing districts of North Karnataka, India, resulting in 20-70% yield losses. A range of herbicides were effective when sprayed in furrows beside the rows at 90 days, oxyfluorfen and mixtures involving 2,4-D increasing yields 3-4-fold.]

Bachhav, S.S., Bhutada, M.S., Patil, S.P., Sharma, K.S. and Patil, S.D. 2015. Oleanolic acid prevents increase in blood pressure and nephrotoxicity in nitric oxide dependent type of hypertension in rats. Pharmacognosy Research

7(4): 385-392. [Confirming the antihypertensive effect in rats, of oleanolic acid isolated from *Viscum articulatum*.]

Badr, J.M. 2015 Chemical constituents of *Phragmanthera austroarabica* A. G. Mill and J. A. Nyberg with potent antioxidant activity. Pharmacognosy Research 7(4): 335-340. [Concluding that the antioxidant activities of the compounds isolated from *P. austroarabica* can justify its use as a traditional medicine for treatment of diabetes in Sausi Arabia.]

Badu-Apraku, B., Annor, B., Oyekunle, M., Akinwale, R.O., Fakorede, M.A.B., Talabi, A.O., Akaogu, I.C., Melaku, G. and Fasanmade, Y. 2015. Grouping of early maturing quality protein maize inbreds based on SNP markers and combining ability under multiple environments. Field Crops Research 183: 169-183. [Ninety-one diallel crosses derived from 14 early maturing yellow-endosperm QPM inbreds were evaluated under *Striga* infested, drought, low-N and optimal environments in Nigeria. Hybrids TZEQI 87 × TZEQI 93, TZEQI 77 × TZEQI 91 and TZEQI 80 × TZEQI 91 were identified as the most stable and high yielding across research environments and should be commercialized.]

Badu-Apraku, B., Yallou, C., Oyekunle, M., Akinwale, R., Aweke, G. and Kamara, A. 2015. Consistency of performance of early-maturing maize cultivars in *Striga*-infested and *Striga*-free environments. Canadian Journal of Plant Science 95(6): 1073-1084. [Among 16 ezarly-maturing maize cultivars tested TZE Comp 5-W C7F2 and TZE Comp5-Y C6 S6 (Set B) had less *Striga hermonthica* damage and number of emerged *Striga* across test environments. These could therefore serve as sources of favourable alleles for improving *Striga* resistance in maize in different production environments and farming systems.]

Bahia, T.deO., Zúñiga, I.G., Souza, M.L., Coutinho, E.S., Quesada, M. and Fernandes, G.W. 2015. Hemiparasitism effect on *Baccharis dracunculifolia* DC. and consequences to its major galling herbivore. Acta Botanica Brasilica 29(3): 339-345. [*Struthanthus flexicaulis* on *B. dracunculifolia* caused loss of foliage on infested branches and an increase in insect galls caused by *Baccharopelma dracunculifoliae* (Psyllidae).]

Bakoush, S.M.M., Yaacob, W.A. and Adam, J.H. 2015. Antioxidant activities, total phenolic and flavonoid contents of the aqueous extracts from *Rafflesia cantleyi* bud parts. Research Journal of Medicinal Plant 9(7): 347-353. [Confirming that the bracts of the *R. cantleyi* bud possess significant free radical scavenging property attributable to its phenolic compounds. Results support the traditional medicinal use as an energy drink due to its natural sources of antioxidants.]

Balachandran, N. 2015. Notes on double and hyper-parasitism in tropical dry evergreen forest of Tamilnadu. Indian Forester 141(1): 114-115. [Recording unspecified *Cassytha* sp. growing on *Dendrophthoe falcata*, growing on G*melina asiatica*.]

Baltazár, T., Pejchal, M., Vachůn, M. and Varga, I. 2015. Non-linear height-diameter regression models for different woody species in the presence of European mistletoe (*Viscum album* L.). In: Hudec, M. and Csáky, A. (eds) Scientia Iuvenis: Book of scientific papers, 15th International Scientific Conference of Phd students, young scientists and pedagogues, 22 October 2014, Nitra, Slovakia 377-384. [A study of the influence of *V. album* on *Acer campestre*, *Juglans nigra*, *Tilia cordata* and *T. platyphyllos* in Czech Republic suggested that only *T. cordata* was significantly affected.]

Bao GenSheng, Saikkonen, K., Wang HongSheng, Zhou LiaNyu, Chen ShuiHong, Li ChunJie and Nan ZhiBiao. 2015. Does endophyte symbiosis resist allelopathic effects of an invasive plant in degraded grassland? Fungal Ecology, 2015 17, 114-125. [Grasses *Stipa purpurea* and *Elymus tangutorum* were reduced by extracts from *Pedicularis kansuensis* but less so when the grasses were infected by endophytic fungi.]

Bao GenSheng, Suetsugu, K., Wang HongSheng, Yao Xiang, Liu Li, Ou Jing and Li ChunJie. 2015. Effects of the hemiparasitic plant *Pedicularis kansuensis* on plant community structure in a degraded grassland. Ecological Research 30(3): 507-515. [Studies of the host range of *P. kansuensis* showed that Poaceae, Rosaceae and Fabaceae were preferentially parasitised. Biodiversity was greater in its presence than when it was removed.]

Basanti Majhi, Satapathy, K.B. and Mishra, S.K. 2015. Effect of medicinal plants on various skin diseases: a review. World Journal of Pharmaceutical Research 4(5): 600-614. [Including some mention of *Santalum album.*]

Bawa, A., Addai, I.K. Abdulai, M.S. and Kugbe, J.X. 2015. Evaluation of some genotypes of maize (*Zea mays* L.) for tolerance to *Striga hermonthica* (Del.) Benth in northern Ghana. Research in Plant Biology 5(5): 1-12. [Pot and field tests suggested that TAIS03, DT-STR-W-C2 and IWD-C3-SYN-F2 were 'highly

tolerant', while TAANO4, NYAZ03-Y, KOBN03-OB, SISF03-OB, NYIA03 and CHFB04-OB 'were moderately tolerant'.]

Behdarvandi, B., Guinel, F.C. and Costea, M. 2015. Differential effects of ephemeral colonization by arbuscular mycorrhizal fungi in two *Cuscuta* species with different ecology. Mycorrhiza 25(7): 573-585. [Showing that the ephemeral 'roots' of *C. gronovii* were more infected by AM fungi and benefitted in terms of longer independent growth, than *C. campestris* which was little infected and did not benefit. The ability to interact with AM fungi together with the capacity to absorb water, tend to support the idea that the 'roots' are indeed true roots.]Bhadane, R.G., Gaikwad, N.S., Girase, P.R. and Pawar, S.P. 2015. A survey on medicinal plants in Toranmal regions. Pharma Science Monitor 6(2): 133-153. [Reviewing a wide range of medicinal plants including mention of *Santalum album* (in Maharastra, India).]

Bhale, U.N. 2014. Prospective of leaf extracts against pathogenic fungi of sorrel (*Rumex acetosa* L.). Flora and Fauna (Jhansi) 20(1): 44-48. [Leaf extracts of *Santalum album* showed considerable reduction of radial growth of *Fusarium proliferatum* and is considered suitable for management of infective pathogens.]

Bista, A. 2015. Effects of nitrogenous fertilizers on seed germination of *Orobanche solmsii* C.D. Clarke. Ecoprint: An International Journal of Ecology 21: 73-78. [Seven nutrient chemicals applied *in* vitro pre--conditioning on *O. solmsii* seed germination. at 4, 8 and 16 mM were all inhibitory. Post-conditioning ammonium nitrate and ammonium chloride reduced germination by 43% and 41%,]

Bitu, V.de C.N., Bitu, V.de C.N., Matias, E.F.F., de Lima, W.P., Portelo, A.da C., Coutinho, H.D.M. and de Menezes, I.R.A. 2015. Ethnopharmacological study of plants sold for therapeutic purposes in public markets in Northeast Brazil. Journal of Ethnopharmacology 172: 265-272. [*Ximenia americana* among the plants most frequently used as traditional medicines in NE Brazil.]

Blažek, P. and Lepš, J. 2015. Victims of agricultural intensification: mowing date affects *Rhinanthus* spp. regeneration and fruit ripening. Agriculture, Ecosystems & Environment 211: 10-16. [Studies on *R. minor* (a vernal ecotype) and *R. alectorolophus* (an aestival ecotype) confirmed that where meadows are mown in the period when plants are not able to regenerate and not enough fruits have ripened, *Rhinanthus* populations could undergo a massive decline. Concluding that the optimal time for mowing in the Czech Republic would be mid-June.]

Burns, A.E., Taylor, G.S. and Watson, D.M. Cunningham, S.A. 2015. Diversity and host specificity of Psylloidea (Hemiptera) inhabiting box mistletoe, *Amyema miquelii* (Loranthaceae) and three of its host *Eucalyptus* species. Austral Entomology 54(3): 306-314. [Studying the psylloids (Hemiptera: Psylloidea), inhabiting *Amyema miquelii*, and hosts *Eucalyptus blakelyi*, *E. melliodora* and *E. polyanthemos*. Two were associated with *A. miquelii* and 18 with the *Eucalyptus* spp.]

Butaud, J.F. 2015. Reinstatement of the Loyalty Islands sandalwood, *Santalum austrocaledonicum* var. *glabrum* (Santalaceae), in New Caledonia. PhytoKeys 56(11): 111-126. [Previously considered a synonym of the type variety, The Loyalty Islands sandalwood is reinstated as *Santalum austrocaledonicum* var. *glabrum* Hürl; its distinctiveness is supported by morphological and genetic studies]

Cardoso, L.J.T. and Braga, J.M.A. 2015. A new Caribbean species of *Helosis* (Balanophoraceae) with a revised key to the genus. Systematic Botany 40(2): 597-603. [*Helosis antillensis* is described and illustrated; related to *H. cayennensis*, but distinguished by runners with remarkable verrucous surface projections, an inflorescence stalk up to 4.5 cm long, etc.]

Carneiro, L.T., Aguiar, A.J.C., Martins, C.F., Machado, I.C. and Alves-dos-Santos, I. 2015. *Krameria tomentosa* oil flowers and their pollinators: bees specialized on trichome elaiophores exploit its epithelial oil glands. Flora (Jena) 215: 1-8. [Krameriaceae are all pollinated by oil-seeking bees. Confirming that 21 Apidae visited the flowers, including the oil-bee *Centris hyptidis* specialized on trichome elaiophores as well as stingless-bees which foraged for pollen. *Centris nitens* and *Trigona fulviventris* were the most frequent visitors.]

Cardona-Medina, E. and Muriel Ruiz, S.B. 2015. Seed germination and plant development in *Escobedia grandiflora* (Orobanchaceae): evidence of obligate hemiparasitism? Acta Biológica Colombiana 20(3): 133-140. [Concluding that *E. grandiflora* (looks like a *Cycnium* sp.) does not require a host for germination and may survive for 6 months without a host but fails then to flower or fruit, hence effectively obligate. Develops flowers 28 weeks after attachment to *Paspalum* spp.]

Ćavar, S., Zwanenburg, B. and Tartowski, P. 2015. Strigolactones: occurrence, structure, and biological activity in the rhizosphere. Phytochemical Review14: 691-711. [This review presents the available spectroscopic data of structures of strigolactones, their occurrence in the plant kingdom, as well as germination and hyphal branching activities. The structures of 7α- and 7β-hydroxyorobanchol and 7-oxoorobanchol have recently been estabilished. See Khetkam et al. 2014. (Haustorium 67)]

Cheng WenHsi, Lai ChinHsing, Tzeng WenJiunn, Her Chyn and Hsu YaHan. 2015. Gaseous products of incense coil combustion extracted by passive solid phase microextraction samplers. Atmosphere 6(6): 822-833. [Comparing sampling methods for analysing products from burning sandalwood (presumably *Santalum album*).]

Chinsembu, K.C., Hijarunguru, A. and Mbangu, A. 2015. Ethnomedicinal plants used by traditional healers in the management of HIV/AIDS opportunistic diseases in Rundu, Kavango East Region, Namibia. South African Journal of Botany 100: 33-42. [*Ximenia caffra* among the more commonly used traditional medicines in Namibia but not clear whether for AIDS.]

Cleaver, C.M., Jacobi, W.R., Burns, K.S. and Means, R.E. 2015. Limber pine in the central and southern Rocky Mountains: stand conditions and interactions with blister rust, mistletoe, and bark beetles. Forest Ecology and Management 358: 139-153. [Studying the interactions of blister rust and *Arceuthobium cyanocarpum* with the bark beetle *Dendroctonus ponderosae* on *Pinus flexilis*. The bark beetle is the main cause of damage, occurring on 17% of trees while *A. cyanocarpum* recorded on only 9% and not apparently a major factor in tree mortality.]

Cochavi, A., Achdari, G., Smirnov, E., Rubin, B. and Eizenberg, H. 2015. Egyptian broomrape (*Phelipanche aegyptiaca*) management in carrot under field conditions. Weed Technology 29(3): 519-528. [Confirming that 3 sequential foliar applications of glyphosate, at 108 g/ha, provided complete control of *P. aegyptiaca*.]

Conn, C.E., Bythell-Douglas, R.,Neumann, D, Yoshida, S., Whittington, B., Westwood, J.H., Shirasu, K,, Bond, C.S., Dyer, K.A. and Nelson, D.C. 2015. Convergent evolution of strigolactone perception enabled host detection in parasitic plants. Science 349 (6247): 540-543. [see Literature Highlight above.]

Conversa, G., Bonasia, A., Prencipe, N., la Rotonda, P. and Elia, A. 2015. (Effectiveness of sulfonylureas against *Orobanche* sp. on tomato.) (in Italian) Informatore Agrario 71(21): 50-53. [No detail in abstract.]

Couvreur, J.M., Fiévet, V., Smits, Q. and Dufrêne, M. 2015. Evaluation of the "observer effect" in botanical surveys of grasslands. Biotechnologie, Agronomie, Société et Environnement 19(2) 132-142. [*Rhinanthus minor* involved in some of the ecological surveys, whose methodology is discussed.]

Crescenzi, A., Fanigliulo, A., Fontana, A. and Fascetti, S. 2015. First report of *Orobanche nana* on celery in Italy. Plant Disease 99(8): 1188. [Reporting infestation of *O. nana* (*Phelipanche nana*) in celery following broccoli in Basitlicata, Italy.]

Cui Bei, Lin RuoZhu, Zhao WenXia and Lan ZongKe. 2014. (Ecological damage assessment of *Loranthus tanakae* (Loranthaceae) in the south slopes of Qinling Mountain.) (in Chinese) Scientia Silvae Sinicae 50(10): 86-93. [Concluding that *Quercus aliena* var. *acutiserrata*. was the prefered but not exclusive host of *L. tanakae*. Host trees could be seriously damaged by death of distal parts of branches.]

da Silva, K.M.A., Chaves, T.P., Santos, R.L., Brandão, D.O., Fernandes, F.H.A., Ramos Júnior, F.J.de L., dos Santos, V.L., Felismino, D.deC. and Medeiros, A.C.D.. 2015. Modulation of the erythromycin resistance in *Staphylococcus aureus* by ethanolic extracts of *Ximenia americana* L and *Schinopsis brasiliensis* Engl. Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 14(2): 92-98. [Results suggest that extracts from *X. americana* could be used as adjuvants in the treatment of infections by *S. aureus* resistant to erythromycin.]

Dao, A., Sanou, J., Gracen, V. and Danquah, E.Y. 2015. Identifying farmers' preferences and constraints to maize production in two agro-ecological zones in Burkina Faso. Agriculture and Food Security, 4: 13. [Participatory Rural Appraisals were undertaken in Burkina Faso, finding that *Striga* is considered the most important pest of maize, followed by termites. Also noting that poor cash flow, inadequate farm tools and poor extension service contribute to low uptake of new technologies.]

Davis, C.C. and Zhenxiang Xi. 2015. Horizontal gene transfer in parasitic plants. Current Opinion in Plant Biology 26: 14-19. (http://www.people.fas.harvard.edu/~ccdavis/pdfs/Davis_Xi_COIPB_2105.pdf) [Horizontal

gene transfer is shown to be 'astonishingly' high in the mitochondrial genome, and appreciable in the nuclear genome. Although explicit tests remain to be performed, some transgenes have been hypothesised to be functional in their recipient species, thus providing a new perspective on the evolution of novelty in parasitic plants.]

De Freitas, J.D. and Rossi, M.N. 2015. Interaction between trophobiont insects and ants: the effect of mutualism on the associated arthropod community. Journal of Insect Conservation 19(4): 627-638. [Studying a system comprising *Psittacanthus robustus*, three trophobionts and two tending ants and showing that locally, the abundance and species richness of the whole arthropod community did not decrease when mutualism was present, but the feeding group composed by predators was negatively affected by mutualism.]

de Vasconcelos, G.C.L. and de Melo, J.I.M. 2015. (Flora of the State of Paraíba, Brazil: Loranthaceae Juss.) (in Portuguese) Acta Scientiarum - Biological Sciences 37(2): 2, 238-250. [Providing a key to the ten species recorded in Parana: *Passovia* (one species), *Psittacanthus* (two species), *Pusillanthus* (one species) and *Struthanthus* (six species). *Struthanthus concinnus* was found for the first time in Paraíba.]

Delchev, G. and Georgiev, M. 2015. Achievements and problems in the weed control in oil-bearing sunflower (*Helianthus annuus* L.). Scientific Papers - Series A, Agronomy 58: 168-173. [Noting that herbicides are being successfully used for control of weeds in naturally herbicide-resistant sunflower, including *Orobanche cumana*, but that there is a problem controlling volunteer sunflowers in following crops.]

*Delebinski, C.I., Twardziok, M., Kleinsimon, S., Hoff, F., Mulsow, K., Rolff, J., Jäger, S., Eggert, A. and Seifert, G. 2015. A natural combination extract of *Viscum album* L. containing both triterpene acids and lectins is highly effective against AML *in vivo*. PLoS ONE 10(8): e0133892. (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0133892) [Single *V. album* extracts containing only solubilised triterpene acids (TT) or lectins (viscum) each inhibited cell proliferation and induced apoptosis in human acute myeloid leukaemia cells. The combination (viscumTT) also showed therapeutic effectiveness in the acute myeloid leukaemia mouse model resulting in significant tumour weight reduction, comparable to the effect in cytarabine-treated mice.]

Dev, I. and Neerja Agrawal C.S. 2015. Bio-efficacy of neem and other botanicals for melon fruit fly (*Bactrocera cucurbitae*) management. Current Advances in Agricultural Sciences 7(1): 91-92. [*Cuscuta reflexa* relatively inactive against melon fruit fly.]

Devkota, M.P. Macklin, J. and Nickrent, D.L. 2015. The status of the mistletoe genus *Dufrenoya* Chatin (Amphorogynaceae) with a specific focus on Nepal. Flora (Jena) 215: 75-83. [This study examined the morphology, anatomy, taxonomy, phylogeny, and distribution of *Dufrenoya platyphylla* and *D. granulata* in Nepal]

Djilé, B., Miafo, A.P.T., Djodda, J., Boukar, O. and Sobda, G. 2015. (Evaluation of the resistance to a weed parasite, *Striga gesnerioides* of exotic varieties of cowpea [*Vigna unguiculata* (L.) Walp.] grown in Cameroon.) (in French) International Journal of Innovation and Applied Studies 12(4): 982-990. [A pot experiment identified 11 varieties resistant to *S. gesnerioides* among which IT07K-187-24 and IT07K-291-89 showed best agro morphologic traits.]

Dolon Nath, Mukherjee, S.K. 2015. Evaluation of plants in Hindu mythology, festivals and rituals and their conservational aspect. International Journal of Pharmaceutical Research and Bio-Science 4(3): 310-326. [The list includes *Santalum album*.]

Dominighini, A., Ferrero, M., Crosetti, D., Ronco, M.T., Gonzálvez, J., Urli, L., Wagner, M., Gurni, A., Carnovale, C.E. and Luquita, A. 2015. Effects of proanthocyanidin enriched extract from *Ligaria cuneifolia* on plasma cholesterol and hemorheological parameters. *In vivo* and *in vitro* studies. Clinical Hemorheology and Microcirculation60(3): 141870. [This study confirmed that extract of *L. cuneifolia* increased blood viscosity and decreased plasma cholesterol in rats.]

Ebrahimi, L. and Hassannejad, S. 2015. Allelopathic effects of Syrian bean caper (*Zygophyllum fabago* L.) on seed germination and seedling growth of eastern dodder (*Cuscuta monogyna* Vahl.). Journal of Biodiversity and Environmental Sciences (JBES) 7(2): 253-260. [Suggesting that all parts of *Z. fabago* dried and applied at 2.5-10% reduced germination and growth of *C. monogyna* seedlings (in Bangladesh).]

El-Rabiai, G.T. and Al-Tira, M. 2015. Checklist of the flora of Wadi Haboon at Al Jabal Al Akhdar

(Cyrenaica, Libya). International Journal of Pharmacy and Life Sciences 6(8/9): 4661-4665. [Listing *Cytinus hypocistis* (Rafflesiaceae).]

Encheva, J., Georgiev, G. and Penchev, E. 2015. Heterosis effects for agronomic ally important traits in sunflower (*Helianthus annuus* L.). Bulgarian Journal of Agricultural Science 21(2): 336-341. [Describing a hybrid involving the restorer line 278R which apparently combines high resistance to *Orobanche cumana* races-A-G in Bulgaria and immunity to *Plasmopara helianthi*-races 300, 700 and 731 but abstract (in English) not easy to follow.]

Endress, P.K. 2015. Patterns of angiospermy development before carpel sealing across living angiosperms: diversity, and morphological and systematic aspects. Botanical Journal of the Linnean Society 178(4): 556-59. [This paper surveys the different means of carpel closure in angiosperms. For some families in Santalales (traditional concepts), older literature was reviewed with respect to carpel number and free-central placentation. Rafflesiaceae and Balanophoraceae s.l. are listed as examples of gynoecia without primary morphological space.]

Evans, B.A. and Borowicz, V.A. 2015. The plant vigor hypothesis applies to a holoparasitic plant on a drought-stressed host. Botany 93(10): 685-689. [In studies with *Cuscuta gronovii* on *Verbesina alternifolia* results suggest drought stress experienced by a host weakens source strength and reduces uptake by the holoparasite acting as a sink.]

*Fadini, R.F. and Cintra, R. 2015. Modeling occupancy of hosts by mistletoe seeds after accounting for imperfect detectability. PLoS ONE 10(5): e0127004. (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127004) [A study involving *Psittacanthus plagiophyllus* on the cashew tree *Anacardium occidentale*.]

Fan YaNan, Huang YuQiu, Jia TianZhu, Geng TongTong, Zhu Yan and Shi Ji. 2015. (Research progress on processing of *Cistanches herba*.) (in Chinese) Drugs and Clinic 30(6): 737-741. [A review detailing the constituents, the uses, the processing, and the changes involved in the course of processing.]

Farzan, S. 2014. Field dodder (*Cuscuta campestris*) does not promote nutrient transfer between parasitized host plants. Southwestern Naturalist 59(4): 515-519. [Results suggest that few (if any) nutrients passed through *C. campestris* from one tomato host donor to a recipient tomato plant and that shading the donor did not impact the growth of the receiver plant.]

Fatema Nasrin, Hakim, M.L., Pinon, R.M., Mou Chakraborty, Sarker, N.G. and Khurshad Alam. 2015. Analgesic study of methanolic extracts of *Loranthus europaeus* leaf and stem. World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS) 4(7): 11-19. [Confirming the analgesic potency in mice, of the leaf and stem extracts of *L. europaeus*.]

Ferus, P., Sîrbu, C., Eliáš, PJr., Konôpková, J., Ďurišová, L., Samuil, C. and Oprea, A. 2015. Reciprocal contamination by invasive plants: analysis of trade exchange between Slovakia and Romania. Biologia (Bratislava) 70(7): 893-904. [Noting significant amounts of *Cuscuta campestris* seed contaminating produce exported from Romania.]

Fontúrbel, F.E., Jordano, P. and Medel, R. 2015. Scale-dependent responses of pollination and seed dispersal mutualisms in a habitat transformation scenario. Journal of Ecology (Oxford) 103(5): 1334-1343. [The highly specialized mutualistic system involving *Tristerix corymbosus,* its humming bird pollinator and marsupial disperser appear to be responding positively to the habitat structure modifications associated with *Eucalyptus* plantations. However, the actual costs (e.g. reduced gene flow, increased herbivory) in these transformed habitats are yet to be assessed.]

Frias-Escalante, M.P., Burgos-Hernandez, A., Plascencia-Jatomea, M., Aldana-Madrid, M.L. and Cortez-Rocha, M.O. 2015. Antifungal, acute toxicity and mutagenicity activity of extracts from *Datura stramonium*, *Jacquinia macrocarpa* and *Krameria erecta* on *Fusarium verticillioides*. African Journal of Biotechnology 14(28): 2251-2257. [*K. erecta* caused almost complete inhibition of *F. verticillioides* spore germination without demonstrating mutagenic effects in an Ames test. It was also active on brine shrimp.]

Gai XiangYun and 10 others. 2015. Echinacoside induces rat pulmonary artery vasorelaxation by opening the NO-cGMP-PKG-BK_{Ca} channels and reducing intracellular Ca^{2+} levels. Acta Pharmacologica Sinica 36(5): 587-596. [Studying the vasorelaxant effect of echinacoside a phenylethanoid glycoside from *Cistanche tubulosa* (and the Tibetan herb *Lagotis brevituba*).]

Galani, B.R.T., Sahuc, M.E., Njayou, F.N., Deloison, G. and 7 others. 2015. Plant extracts from Cameroonian medicinal plants strongly inhibit hepatitis C virus infection *in vitro*. Frontiers in Microbiology 6(May): 488.

[*Phragmanthera capitata* one of three medicinal plants showing promise as sources of anti-HCV agents.]

Gao Li, Peng XiaoMing, Huo ShiXia, Liu XinMing and Yan Ming. 2015. Memory enhancement of acteoside (Verbascoside) in a senescent mice model induced by a combination of D-gal and $AlCl_3$. Phytotherapy Research 29(8): 1131-1136. [Results support the use of *Cistanche deserticola* for memory enhancement and indicate that the effects of acteoside are induced via promotion of nerve growth factor and tropomycin receptor kinase A expression.]

Garcia, G.R.M., Hennig, L., Sieler, J. and Bussmann, R.W. 2015. Constituents of *Corynaea crassa* "Peruvian Viagra".Revista Brasileira de Farmacognosia 25(2): 92-97. [Identifying β-sitosterol, lupenone, β-amyrone, lupeol, and β-amyrine; also unusual complex 1:1 mixtures of lupenone/β-amyrone and lupeol/β-amyrine in extracts of *C. rassa* (Balanophoraceae).]

Gebrehiwot, N. and Berhanu, L. 2015. Impact of parthenium on species diversity in Gamo Gofa, Ethiopia. Scholarly Journal of Agricultural Sciences 5(7): 226-231. [*Alectra vogelii* a minor component of the flora associated with *Parthenium hysterophorum* in this district of Ethiopia.]

Gebrelibanos Gebremariam and Dereje Assefa. 2015. Nitrogen fertilization effect on grain sorghum (*Sorghum bicolor* L. Moench) yield, yield International Journal of Agricultural Research 10(1): 14-23. [Recording increases in sorghum yield with application of N, maximal at 150 kg/ha. *Striga hermonthica* infestation was reduced by 36%.

Girija, T. 2015. Control of hemiparasite, *Dendrophthoe falcata* on tree crops. Proc.Volume II 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 139. [*D. falcata* in mango, cocoa and sapota was successfully controlled for 6 months by thorough wetting with ethephon at 8,000 to 10,000 ppm.]

Gonçalves, M.J., Piras, A., Porcedda, S., Marongiu, B., Falconieri, D., Cavaleiro, C., Rescigno, A., Rosa, A. and Salgueiro, L. 2015. Antifungal activity of extracts from *Cynomorium coccineum* growing wild in Sardinia island (Italy). Natural Product Research 29(23): 2247-2250. [Confirming activity of *C. coccineum* against *Cryptococcus neoformans*, *Candida guilliermondii* and *Candida krusei*, but emphasising more reszearch needed.]

*Graffis, A.M. and Kneitel, J.M. 2015. A parasitic plant increases native and exotic plant species richness in vernal pools. AoB Plants 7: plv100**.** (**http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4612139/**) [Studying the effects of removing the endemic *Cuscuta howelliana* from pools in California and showing that its reduction of its main native host, *Eryngium castrense* contributes to increased species richness.]

Guinnin, F.D.F., Sacramento, T.I., Sezan, A. and Ategbo, J.M. 2015. (Ethnobotanical study of medicinal plants used in the traditional treatment of viral hepatitis B and C in some areas in Benin.) (in French) International Journal of Biological and Chemical Sciences 9(3): 1354-1366. [*Opilia celtifolia* among the more commonly used among 54 plants for viral hepatitis in Benin.]

Habak, H., Ahmad, M. and El-Rahban, B. 2015. Potential of *Phytomyza orobanchia* Kalt. and *Smicronyx cyaneus* Gyll. as biocontrol agents of the parasitic weed *Orobanche crenata* Forsk. along the coastal region of Syria. Arab Journal of Plant Protection 33(2): 230-237. [Finding that a combination of *S. cyaneus* with *P. orobanchia* had a greater damaging effect on *O. crenata* than *P. orobanchia* alone.]

Haidar, M., Jaafar, H., Mosleh, F.A., Karam, N. and Ghandour, A. 2015. Fluridone: an effective approach to control *Phelipanche aegyptiaca* in potato crop. Journal of Agricultural Science and Technology B 4(10): 771-778. [Doses of fluridone applied to potato at up to 20 µM/ha were apparently safe and doses of 10 µM/ha at 20 and 35 days reduced *P. aegyptiaca* by 99%.]

Haidar, M. and Shdeed, E. 2015. *Phelipanche aegyptiaca* management with glyphosate in potato. American Journal of Plant Sciences 6(16): 2540-2549. [Best selective control of *P. aegyptiaca* in potato was obtained by sequential applications of glyphosate at 60 and 80 $g.ai.ha^{-1}$. Higher rates reduced yield. Ammonia gas, phosphoric acid and sulfuric acid were inneffective.]

Han SeungYeon, Hong ChangEui, Kim HwanGyu and Lyu SuYun. 2015. Anti-cancer effects of enteric-coated polymers containing mistletoe lectin in murine melanoma cells in vitro and in vivo. Molecular and Cellular Biochemistry 408(1/2): 73-87. [Confirming effects of extracts of *Viscum album* var. *coloratum* on mouse melanoma and showing that this is associated with the lectin component which increases activated multiple caspases and decreases in the expression of procaspase-3 and 8.]

Hartley, S.E., Green, J.P., Massey, F.P., Press, M.C.P., Stewart, A.J.A. and John, E.A. 2015. Hemiparasitic plant impacts animal and plant communities across four trophic levels. Ecology 96(9): 2408-2416. [Describing *Rhinanthus minor* as a 'keystone species', lowering plant biomass but, at higher densities enhancing invertebrates, with effects evident in herbivores, predators, and detritivores.]

Hazeldine, A. and Kirkpatrick, J.B. 2015. Practical and theoretical implications of a browsing cascade in Tasmanian forest and woodland. Australian Journal of Botany 63(5): 435-443. [Noting that *Exocarpos cupressiformis* is particularly favoured by browsing marsupials.]

Hempattarasuwan, P. and Duangmal, K. 2015. Effect of growing location, cooking method and brine salting on *Melientha suavis* Pierre (Pak Wann Paa) qualities. In: Acedo, A.L.Jr. and Kanlayanarat, S. (eds) Acta Horticulturae 1088: 587-590. [Documenting the use of the tree *M. suavis* (Opiliaceae) in Thailand, where the leaves are blanched, boiled or steamed, in preserved in brine.]

Herrera-Ruiz, M., López-Rodríguez, R., Trejo-Tapia, G., Domínguez-Mendoza, B.E., González-Cortazar, M., Tortoriello, J. and Zamilpa, A. 2015. A new furofuran lignan diglycoside and other secondary metabolites from the antidepressant extract of *Castilleja tenuiflora* Benth. Molecules 20(7): 13127-13143. [Identifying a number of components in extract of *C. tenuifolia* which may contribute to its anto-depressant activity.]

Hooper, A.M., Caulfield, J.C., Hao, B., Pickett, J.A., Midega, C.A.O. and Khan, Z.R. 2015. Isolation and identification of *Desmodium* root exudates from drought tolerant species used as intercrops against *Striga hermonthica*. Phytochemistry 117: 380-387. [Confirming that the allelopathic activity of the drought-tolerant *D. intortum*, *D. incanum* and *D. ramosissimum* is associated with glycosylflavonoids.]

Hosseini, A. 2015. New mechanical methods and treatments for controlling of leafy mistletoe (*Loranthus europaeus* jacq.) on Persian oak trees (*Qu*ercus persica). International Journal of Environmental Sciences 5(4): 848-855. [Reporting successful control of *L. europaeus* in Iran by removal of infected branches and caulking the cut surfaces with clay or Glue-stick can simply and inexpensively eliminate the mistletoe and prevent its re-establishment on the treated branch. Covering by black plastic had only a temporary effect.]

Hu Xiu, Wu FuChuan, Guo Wei and Liu Nian. 2014. Identification of potential cultivation region for *Santalum album* in China by the MaxEnt ecologic niche model. Scientia Silvae Sinicae 50(5): 27-33. (Using the MaxEnt ecological model it was shown that, besides the traditionally accepted regions of western Hainan province, and Leizhou Peninsula of Guangdong province, the southeast coast of Guangdong and Fujian Province were also identified as highly suitable for cultivation o *S. album*.]

***Ibdah, M., Dubey, N.K., Eizenberg, H., Dabour, Z., Abu-Nassar, J., Gal-On, A. and Aly, R. 2015. *Cucumber mosaic virus* as a carotenoid inhibitor reducing *Phelipanche aegyptiaca* infection in tobacco plants. Plant Signaling and Behavior 9(10) e972146. (http://www.tandfonline.com/doi/full/10.4161/psb.32096 [Showing that CMV downregulated the enzyme phytoene desaturase(PDS) and reduced significantly both carotenoid production and *Phelipanche* infection in tobacco host roots infected with both CMV and *P. aegyptiaca*, apparently due to reduced strigolactone exudation. Suggesting that attenuated CMV strains may provide a safe means for enhancing crop resistance against parasitic weeds.]**

Ibukunoluwa, M.R., Olusi, T.A. and Dada, E.O. 2015. Assessment of chemical compositions of three antimalarial plants from Akure, Southwestern Nigeria: a preliminary study. African Journal of Plant Science 9(8): 313-319. [*Olax subscorpioidea* one of three species analysed for components of possible relevance to their use in traditional medicine against malaria.]

Ichihashi, Y.. Mutuku, J.M., Yoshida, S. and Shirasu, K. 2015. Transcriptomics exposes the uniqueness of parasitic plants. Briefings in Functional Genomics 14(4): 275-282. [Current technical advances in next-generation sequencing and bioinformatics have allowed dissection of the molecular mechanisms behind the uniqueness of parasitic plants at the genome-wide level. In this review, recent key findings are summarised, mainly in transcriptomics that will provide insights into the future direction of parasitic plant research.]

Indrioko, S., Ratnaningrum, Y.W.N., Trihartono, A. and McLellan, B. 2015. Habitat loss caused clonality, genetic diversity reduction and reproductive failure in *Santalum album* (Santalaceae), an endangered endemic species of Indonesia. Procedia Environmental Sciences 28: 657-664. [Results indicate that due to

degradation and habitat loss caused by heavy exploitation in eastern Indonesia, there has been significant reduction in genetic variability associated with clonality on fragmented or isolated habitat, in which the remnant mother trees reproduced asexually. This has resulted in inbreeding depression and sexual reproductive failure. Genetic infusion and enhancement of population size is recommended.]

Jahan, I.A., Akbar, P.N., Mohammad Enayetullah, Nazir Ahmmad, Mohammad Nuruddin and Ahmed, M.R. 2015. Elemental and fatty acid content of four medicinal plants: *Kaiempferia rotunda*, *Cuscuta reflexa*, *Centella asiatica* and *Asparagus racemosus*. European Journal of Medicinal Plants 10: 4. [Concluding that, as a medicinal plant, *Cuscuta reflexa* is a good source of the elements Na, K, Mg and Cr, whereas Cu, Cd and Mn are only present in trace amounts. Significant amounts of fatty acids were also detected that come with 'immense biological properties'.]

Jang JiYeon, Kim SeYong, Song KyungSik and Seong YeonHee. 2015. Korean mistletoe (*Viscum album* var. *coloratum*) inhibits amyloid β protein (25-35)-induced cultured neuronal cell damage and memory impairment. Natural Product Sciences 21(2): 134-140. [Confirming the activity and potential value of extracts of *V. album* var. *coloratum* in preventing the progression of Alzheimer's disease.]

Johnsen, H.R., Striberny, B., Olsen, S., Vidal-Melgosa, S., Fangel, J.U., Willats, W.G.T., Rose, J.K.C. and Krause, K. 2015. Cell wall composition profiling of parasitic giant dodder (*Cuscuta reflexa*) and its hosts: *a priori* differences and induced changes. New Phytologist 207(3): 805-816. [A simple definition of parasitic plant is a plant that produces a ustorium putting that organ at the center of understanding the host-parasite interface. The authors of this paper advance our understanding through their study of the pectinolytic activity in haustorial extracts. Response to these compounds was much lower in resistant hosts.]

Kannan, C., Pathak, A. Zwanenburg, B. 2015. Applicability of borax and thiourea for management of *Orobanche*. Proc.Volume II 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 134. [Confirming *in vitro* that germination of '*O. crenata*' (fortunately for India - as that is where the work was done - a mis-identification of *O. cernua*) by tomato exudate or Nijmegen-1 was prevented by 1mM borax or thiourea, without risk to tomato. NB. Item by Kannan *et al.* listed in Haustorium 67 also referred wrongly to *O. crenata* – should have been *O. cernua.*]

Kara, Y. and Kuru, A. 2015. The effects of *Viscum album* ssp. album L. extract on biochemical indices in partially hepatectomized liver in rats. Journal of Chemical and Pharmaceutical Research 7(5): 25-28. [Indicating some hepatotoxic effects of *V. album* extracts in rats. Also some kidney damage, perhaps due to decreased utilization of urea by damaged liver.]

Kartbaeva, E.B., Sakipova, Z.B., Ibragimova, L.N., Kapsalyamova, E.N. and Ternynko, I.I. 2015. Compositional study of phenolic compounds of *Cistanche salsa* (C.A. Mey) G. Beck, growing in the Republic of Kazakhstan. Journal of Chemical and Pharmaceutical Research 7(5): 120-122. [Determining echinacoside, acteoside and tubuloside B as the main active substances in extracts from stolons of *Cistanche salsa*.]

Kartika, R., Barus, T., Surbakti, R. and Simanjuntak, P. 2015. Anticancer activity of bioactive compounds from fruits of Bawang hutan (*Scorodocarpus borneensis* Becc). Asian Journal of Chemistry 27(12): 4663-4665. [Dehydroxyscorodocarpin B was isolated from fruits of *S. borneensis* (Olacaceae) and shown to have anticancer activity against L_{1210} cell line.]

Katiyar, N.S., Singh, A.P., Gangwar, A.K. and Rao, N.V. 2015. Evaluation of carrageenan induced antiinflammatory activity of stem extracts of *Cuscuta reflexa* (Roxb) in rats. International Journal of Research in Pharmacy and Chemistry 5(2) 322-326. [Confirming that extracts of *C. reflexa* exhibited a significant anti-inflammatory activity in carrageenan-induced paw oedema model in rats.]

Katiyar, N.S., Singh, A.P. and Rao, N. V. 2015. A study on hepatoprotective activity of stem extracts of *Cuscuta reflexa* (Roxb) on ranitidine induced hepatotoxicity in rats. World Journal of Pharmaceutical Research 4(6): 1245-1256. [Extracts of *C. reflexa* showed better hepatoprotective activity when compared to the standard drug silymarin.]

Kazeem, M.I., Ayeleso, A.O. and Mukwevho, E. 2015. *Olax subscorpioidea* Oliv. leaf alleviates postprandial hyperglycaemia by inhibition of α-amylase and α-glucosidase. International Journal of Pharmacology 11(5): 484-489. [Confirming that *O. subscorpioidea* leaf possesses hypoglycaemic potential which may be due to the inhibition of pancreatic α-amylase and intestinal α-glucosidase.]

Khattak, N.S., Faisal Nouroz, Inayat-ur-Rahman and Shumaila Noreen. 2015. Ethno veterinary uses of medicinal plants of district Karak, Pakistan. Journal of Ethnopharmacology 171: 273-279. [Noting that *Cistanche tubulosa* and *Cuscuta reflexa* apparently have ethno-veterinary uses.]

Kibuge, R.M., Kariuki, S.T. and Njue, M.R. 2015. Influence of fuel properties on the burning characteristics of sour plum (*Ximenia americana* L.) seed oil compared with *Jatropha curcas* L. seed oil. Renewable Energy 78: 128-131. [Concluding that *X. americana* seed oil, when blended with kerosene in ratio above 10% can supplement kerosene as biofuel.]

Kim GunJune and Westwood, J.H. 2015. Macromolecule exchange in *Cuscuta*-host plant interactions. Current Opinion in Plant Biology 26: 20-25. [Reviewing studies that show RNAs move bidirectionally between hosts and parasites and involve a large number of different genes. Although the function of mobile mRNAs has not been demonstrated in this system, small RNAs are also transmitted and a silencing construct expressed in hosts is able to affect expression of the target gene in the parasite. High throughput sequencing of host-parasite associations has the potential to greatly accelerate understanding of this remarkable interaction.]

Kipre, G.R., Akakpo-Akué, M., Bla, K.B. and Djaman, A.J. 2015. (Assessment of the combined action of chloroquine and *Olax subscorpioidea* on *Plasmodium falciparum* strains resistant in vitro culture.) (in French) International Journal of Innovation and Applied Studies 11(4): 947-952. [Confirming useful activity of *O. subscorpoides* against malarial *P. falciparum* and valuable synergistic action with chloroquin against a resistant strain.]

Koltai, H. 2015. Cellular events of strigolactone signalling and their crosstalk with auxin in roots. Journal of Experimental Botany 66(16): 4855-4961. [In this review the strigolactone signalling pathway is presented and the resulting changes in actin-filament bundling, cellular trafficking, and PIN localization in the plasma membrane. Also presented is the involvement of strigolactones with the response to phosphate conditions in roots.]

Kouame, N.M.T., Soro, K., Mangara, A., Diarrassouba, N., Koulibaly, A.V. and Boraud, N.K.M. 2015. (Physico-chemical study of seven (7) edible wild plants in west-central Côte d'Ivoire.) (in French) Journal of Applied Biosciences 90: 8450-8463. [*Strombosia pustulata* (Olacaceae) among plants used as a food plant in Côte d'Ivoire.]

Kuijt, J. and Graham, J.G. 2015. Two new species of Loranthaceae from central Peru. Novon 24(2): 173-178. [Describing and illustrating *Gaiadendron coronatum,* closely related to *G. punctatum* but with distinct calyx lobes that develop into a tubular structure in fruit; and *Peristethium grahamii*, distinguished by its 5-merous flowers, the papery scales at the base of a determinate inflorescence, and by its essentially sessile anthers.]

Kuljit Kaur, Ramanpreet, Gupta, R.C. and Santosh Kumari. 2015. Cyto-morphological studies of some dicot plants from Rajasthan (India). Japan, Cytologia 80(3): 353-362. [Noting that '*Orobanche ramosa* (*n*=12) is the first diploid cytotype report from India.']

Kumagai, H.,Fujiwara, M., Kuse, M. and Takikawa, H. 2015. A concise synthesis of optically active solanacol, the germination stimulant for seeds of root parasitic weeds. Bioscience, Biotechnology and Biochemistry 79(8): 1240-1245. [A concise synthesis of optically active solanacol (the natural stimulant from tobacco) achieved by employing enzymatic resolution as a key step.]

Kumar, K.N.S., Saraswathy, A. and Amerjothy, S. 2015. Survey report on hosts and haustoria of *Helicanthus elastica* (Desr.) Danser in Udupi and Dakshina Kannada district of Karnataka and Kasaragod district of Kerala, India - a concise review plus some new additions. Indian Forester 141(4): 448-451. [*Helicanthus elastica* (Loranthaceae) identified on 15 new host species in this area. A total of 54 have been recorded, mango the commonest.]

Ladoh, Y.C.F., Dibong, S.D., Nyegue, M.A., Djembissi, T.R.P., Lenta, N.B., Mpondo, M.E., Yinyang, J. and Wansi, J.D. 2014. (Antioxidant activity of methanolic extract of *Phragmanthera capitata* (Loranthaceae) from *Citrus sinensis*.) (in French) Journal of Applied Biosciences 84:, 7636-7643. [Concluding that antioxidant activity of the extracts of *P. capitata* may justify the traditional uses of this plant and provide possibilities to develop new bioactive compounds.]

Ladoh-Yemeda, C.F., Nyegue, M.A., Ngene, J.P., Benelesse, G.E., Lenta, B., Wansi, J.D., Mpondo, E.M. and Dibong, S.D. 2015. (Identification and phytochemical screening of endophytic fungi from stems of *Phragmanthera capitata* (Sprengel) S. Balle (Loranthaceae).) (in French) Journal of Applied Biosciences 90

8355-8360. [Identifying 11 endophytic fungi on the stems of *P. capitata* belonging to *Aspergillus*, *Penicillium*, *Trichoderma* and *Fusarium* spp.. containing a range of flavonoids, anthroquinones, tannins, phenols, steroids, coumarins and terpenoids of possible interest for use in the fields of health and agriculture.]

Ladokun, O., Ojezele, M. and Arojojoye, O. 2015. Comparative study on the effects of aqueous extracts of *Viscum album* (mistletoe) from three host plants on hematological parameters in albino rats. African Health Sciences 15(2): 606-612. [Results suggest that extracts from mistletoe growing on cocoa, kola and coffee contain agents that could stimulate the production of leucocytes and could serve as immune boosters; BUT '*Viscum album*' is certainly a misnomer and we do not know what species were in fact involved.]

Lechat, M.M., Brun, G., Montiel, G., Véronési, C., Simier, P., Thoiron, S., Pouvreau, J.B. and Delavault, P. 2015. Seed response to strigolactone is controlled by abscisic acid-independent DNA methylation in the obligate root parasitic plant, *Phelipanche ramosa* L. Pomel. Journal of Experimental Botany 66(11): 3129-3140. [Seed dormancy release of Phelipanche *ramosa* requires stimulant-dependent activation of PrCYP707A1, an abscisic acid catabolic gene. Global DNA methylation quantification associated with pharmacological approaches and cytosine methylation analysis of the PrCYP707A1 promoter were used to investigate the modulation and possible role of DNA methylation during the conditioning period and in the PrCYP707A1 response to GR24. The results here demonstrate that the DNA methylation status during the conditioning period plays a crucial role independently of abscisic acid in the regulation of P. *ramosa* seed germination by controlling the strigolactone-dependent expression of PrCYP707A1.]

Lenta, B.N. and 10 others. 2015. Two 2,6-dioxabicyclo[3.3.1]nonan-3-ones from *Phragmanthera capitata* (Spreng.) Balle (Loranthaceae). Helvetica Chimica Acta 98(7): 945-952. [Isolating a range of compounds on *P. capitata* parasitic on *Cassia spectabilis*, including a lactone 4-{2-[*rel*-(1*R*,3*R*,5*S*)-7-oxo-2,6-dioxabicyclo[3.3.1]non-3-yl]ethyl}phenyl 3,4,5-trihydroxybenzoate, with good activity against *Plasmodium falciparum* (chloroquin sensitive).]

Li CaiHong, Li Qing, Liu ZhongJie, Xing XiaoXu, Tian Dan, Vrbanac, Z., Smolec, O., Stanin, D. and Kos, J. 2015. Effects of herbaceous plant preparation of *Cistanche* on *in vitro* cytokine expression by rat osteoblasts. Veterinarski Arhiv 85(3): 335-345. [Exposure of osteoblasts to extract of *C. deserticola* promoted the gene expression of OPG and RANKL and reduced the gene expression of OPG/RANKL and OPN, and thus, could maintain the balance of bone formation and resorption during bone metabolism.]

*Li Juan, Hettenhausen, C., Sun GuiLing, Zhuang HuiFu, Li JianHong and Wu JianQiang. 2015.The parasitic plant *Cuscuta australis* is highly insensitive to abscisic acid-induced suppression of hypocotyl elongation and seed germination. USA, PLoS ONE 10(8) e0135197. (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0135197) ['Given that *Cuscuta* plants are no longer severely challenged by drought stress, we hypothesize that the ABA-mediated drought resistance pathway in *Cuscuta* spp. might have had degenerated over time during evolution.']

Li ShuangXi, Yang ZengJiang, Xu DaPing, Zhang NingNan and Liu XiaoJin. 2015. (Effects of water, nutrient and host on root growth and nutrient absorption of *Santalum album* seedling.) (in Chinese) Journal of Plant Resources and Environment 24(1): 61-68. [Detailing the benefits of extra water and nutrient and the presence of the host *Kuhnia rosmarnifolia* for improved growth of *S. album*. (in Guangzou, China).]

Li WenLan, Sun XiangMing, Song Hui, Ding JingXin, Bai Jing and Chen Qiang. 2015. HPLC/Q-TOF-MS-based identification of absorbed constituents and their metabolites in rat serum and urine after oral administration of *Cistanche deserticola* extract. Journal of Food Science 80(9): H2079-H2087.

*Li YuLi, Wang XiLiang, Chen TingTing, Yao FuWen, Li CuiPing, Tang QingLi, Sun Min, Sun GaoYuan, Hu SongNian, Yu, J. and Song ShuHui. 2015. RNA-seq based de novo transcriptome assembly and gene discovery of *Cistanche deserticola* fleshy stem. PLoS ONE 10(5): e0125722. (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0125722) [A collection of enzyme genes related to biosynthesis of lignin and phenylethanoid glysides were identified from the assembled and annotated transcripts, and the gene family of PAL was also predicted. The sequence data from this study will provide a valuable resource for conducting future phenylethanoid glysides biosynthesis researches

and functional genomic studies in this important medicinal plant.]

Liu ChiaYu, Chiu YungJia, Kuo ChaoLin, Chien TzuMei, Wu LungYuan and Peng WenHuang. 2015. Analgesic and anti-inflammatory activities of the ethanol extract of *Taxillus tsaii* Chiu in mice. Drug Development Research 76(4): 176-184. [The study in mice confirmed the analgesic and anti-inflammatory effects of the extract from *T. tsaii*, thus validating its application in traditional Chinese medicine.]

Lin MingXin, Zhu JianPing, Ding ManNi and Feng YunShu. 2015. (Research on prevention and control of airborne infectious disease by non-oral Chinese herbs in ancient literature.) (in Chinese) China Journal of Traditional Chinese Medicine and Pharmacy, 2015, 30, 5, 1624-1627. [Reviewing the ancient literature for the use of medicinal plants in China, including *Santalum* spp.]

Liu MinLu, Yu WenBin, Kuss, P., Li DeZhu and Wang Hong. 2015. Floral nectary morphology and evolution in *Pedicularis* (Orobanchaceae). Botanical Journal of the Linnean Society 178(4): 592-607. [Concluding that the nectary in beaked species may be a vestigial structure retained during a recent rapid radiation of *Pedicularis*, especially in the Himalaya-Hengduan Mountains of south-western China.]

Liu YeWei, Bu LingNa, Zhao JianXi and Wei JianTeng. 2015. Intracellular metabolomic approach for evaluating antioxidant capacity and its application. Journal of Liquid Chromatography & Related Technologies 38(12): 1179-1184. [The antioxidant activities of *Cynomorium songaricum* was successfully evaluated using the intracellular metabolomic approach described.]

Lopez Laphitz, R.M., Ezcurra, C., Vidal-Russell, R. 2015. Revisión taxonómica del género sudamericano *Quinchamalium* (Schoepfiaceae). Bol. Soc. Argent. Bot. 50:235-246. [In this study, 28 species or infraspecific taxon names are reduced to synonymy with *Q. chilense*.]

Lotfy, H.R., Mukakalisa, C. and Raidron, C. 2015. Analysis of different Namibian traditional oils against commercial sunflower and olive oils. African Journal of Food Science 9(6): 372-379. [Oil from unspecified *Ximenia* sp. among those found to be suitable alternatives as cooking oils.]

Ma YuYing, Fan RongHua, Duan MengMeng, Yu ZhiGuo and Zhao YunLi. 2015. A study of pharmacokinetic interactions among co-existing ingredients in *Viscum coloratum* after intravenous administration of three different preparations to rats. Pharmacognosy Magazine 11(43): 455-462. [A detailed study confirming complex, extensive pharmacokinetic interactions among the 4 main active components in *V. coloratum* extract used in China as a herbal medicine to treat a variety of diseases, including cardiovascular diseases, cancer, hypertension, hepatitis and haemorrhage.]

MacÊdo, D.G., Ribeiro, D.A., Coutinho, H.D.M., Menezes, I.R.A. and Souza, M.M.A. 2015. (Therapeutic traditional practices: usage and knowledge of cerrado plants in the state of Pernambuco (northeastern Brazil).) (in Portuguese) Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 14(6): 491-508. [*Ximenia americana* the most used among 46 medicinal plants in this region.]

McGimpsey, V.J. and Lord, J.M. 2015. In a world of white, flower colour matters: a white-purple transition signals lack of reward in an alpine *Euphrasia*. Austral Ecology 40(6): 701-708. [Noting that only white flowers in *E. dyeri* are fertile, and suggesting that, once pollinated, they quickly change from white to purple, which pollinating insects (mainly bees and syrphid flies tend to avoid, to ensure they are more likely to visit the white flowers that still require pollination.]

Magrach, A., Rodríguez-Pérez, J., Piazzon, M. and Santamaría, L. 2015. Divergent effects of forest edges on host distribution and seed disperser activity influence mistletoe distribution and recruitment. Journal of Ecology (Oxford) 103(6): 1475-1486. [Studying the interactions between *Tristerix corymbosus*, its main host *Campsidium valdivianum* and its only seed disperser,,the marsupial *Dromiciops gliroides*, especially in relation to forest edges.]

Malabrigo, P.LJr. 2013. Vascular flora of the tropical montane forests in Balbalasang-Balbalan National Park, Kalinga Province, Northern Luzon, Philippines. Asian Journal of Biodiversity 4: 1 (unpaginated). [Including reference to *Raffesia* sp(p), not specified in abstract.]

Malik Neeraj and Charaya, M.U. 2013. Deleterious rhizosphere microbes, arbuscular mycorrhizal fungi and quorum management as emerging tools for the biological management of weeds. Vegetos 26(3s): 246-258. [Noting that some deleterious rhizospheric fungi have been found to suppress *Orobanche cumana*.]

Manchester, S.R., Grímsson, F. and Zetter, R. 2015. Assessing the fossil record of asterids in the context of our current phylogenetic framework.

Annals of the Missouri Botanical Garden 100(4): 329-363. . [Fossil evidence was assembled for all asterid lineages for which verifiable fossils exist. Loranthaceae are part of Santalales, the first-branching clade of superasterids. Unequivocal fossil loranth pollen is documented from the early Eocene.]

Manish Gunjan, Thein Win Naing, Saini, R.S., Amaluddin Ahmad, Naidu, J.R. and Ishab Kumar. 2015. Marketing trends & future prospects of herbal medicine in the treatment of various disease. World Journal of Pharmaceutical Research 4(9): 132-155. [A general review including reference to *Cuscuta reflexa* and *Santalum album*.]

Martínez Salvador, M., Madrigal Huendo, S., Vázquez Collazo, I., Velasco Bautista, E., Morales Nieto, C.R. and Villareal Guerrero, F. 2015. Effect of *Arceuthobium vaginatum* (Willd.) Presl. subsp. *vaginatum* in *Pinus hartwegii* Lindl. in Colima state. Revista Mexicana de Ciencias Forestales 6(29): 44-55. [*A. vaginatum* reduced *P. hartwegii* 22% in height, 9% in diameter and 50% in volume It also affected by similar percentages the current annual increment and the mean annual increment]

*Matula, R., Svátek, M., Pálková, M., Volařík, D. and Vrška, T. 2015. Mistletoe infection in an oak forest is influenced by competition and host size. PLoS ONE 10(5): e0127055. (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127055) [Finding, in Czech Republic that the probability of occurrence of *Loranthus europaeus* on individual stems (mainly *Quercus* spp.?) was affected mostly by stem size, whereas competition had the most important effects on the probability of mistletoe occurrence on whole trees as well as on mistletoe abundance. Therefore, we confirmed our hypothesis that competition among trees has a negative effect on mistletoe occurrence.]

Mauro, R.P., Lo Monaco, A., Lombardo, S., Restuccia, A. and Mauromicale, G. 2015. Eradication of *Orobanche/Phelipanche* spp. seedbank by soil solarization and organic supplementation. Scientia Horticulturae 193: 62-68. [Finding 99% reduction in viable seeds of unspecified broomrape (presumably *Phelipanche ramosa*) after one season of solarisation in southern Italy but this became 100% with the addition of organic matter to the soil.]

Mbogo, P.O., Dida, M.M. anfd Owuor, B. 2015. Generation means analysis for estimation of genetic parameters for *Striga hermonthica* resistance in maize (*Zea mays* L.). Journal of Agricultural Science (Toronto) 7(8: 143-155. ['The results reveal the involvement of duplicate epistasis where the dominance estimate and dominance × dominance interaction had opposite signs. The presence of duplicate type of gene interaction confirms the importance of dominance gene effects.']

Mehrbani, M., Choopani, R., Fekri, A., Mehrabani, M., Mosaddegh, M. and Mehrabani, M. 2015. The efficacy of whey associated with dodder seed extract on moderate-to-severe atopic dermatitis in adults: a randomized, double-blind, placebo-controlled clinical trial. Journal of Ethnopharmacology 172: 325-332. [Confirming that thewhey associated with seed extract of *Cuscuta campestris* can serve as a promising alternative for the treatment of moderate-to-severe atopic dermatitis.]

Meng Wei, Wang YingZhen, Guan RenWei, Zhou JianYong, Wang LingLing, Lin HuiBin and Lin JianQiang. 2015. (Study on the fingerprints of cuscutae semen from different hosts by HPLC.) (in Chinese) China Journal of Traditional Chinese Medicine and Pharmacy 30(4): 1079-1082. [Concluding that the main components in extracts of *Cuscuta chinensis* and *C. australis* from different hosts are similar but with different ratios.]

Midega, C.A.O., Bruce, T.J.A., Pickett, J.A., Pittchar, J.O., Murage, A. and Khan, Z.R. 2015. Climate-adapted companion cropping increases agricultural productivity in East Africa. Field Crops Research 180: 118-125. [A survey of 395 farmers across East Africa who had adopted the 'push-pull' technique involving *Desmodium* sp. and *Brachiaria* sp. for control of *Striga hermonthica* and maize stem borer, revealing excellent results including a 2.5-fold maize yield increase and generally high farmer satisfaction.]

Mikolo, Y.C. and Kasumi, I.T.O. 2014. Regulation of usages and dependency on indigenous fruits (IFs) for livelihoods sustenance of rural households: a case study of the Ivindo National Park (INP), Gabon. Journal of Ecology and the Natural Environment 6(10): 349-364. [see Yobo, M.C. and Irto, K. below!]

Mirtchev, S. 2011. Mistletoe (*Viscum album* L.) impact on diameter growth of infested Silver fir trees (*Abies alba* Mill.): dendrochronological study. Journal of Balkan Ecology 14(2): 163-186. [Studying the serious impact of *V. album* on silver fir in Bulgaria, but no detail in abstract.]

Mitsumasu, K., Seto, Y. and Yoshida, S. 2015. Apoplastic interactions between plants and plant root intruders. Frontiers in Plant Science 6: August, 617. (http://journal.frontiersin.org/article/10.3389/fpls.2015.00617/full) [A general review of recent advances in understanding the importance of apoplastic signals and cell walls for plant-parasite interactions, including *Striga, Orobanche* spp. and nematodes.]

Mokoso, J.de D.M., Kavatsurwa, S.M., Birhashirwa, R.N. and Habimana, H. 2015. (Use of woody forestry resources by the population living in the submountain area of Kahuzi-Biega National Park (DR Congo).) (in French) International Journal of Innovation and Applied Studies 11(2): 508-521. [*Strombosia scheffleri* (Olacaceae) among species showing high potential of ethnobotanical use.]

Moniodis, J., Jones, C.G., Barbour, E.L., Plummer, J.A., Ghisalberti, E.L. and Bohlmann, J. 2015. The transcriptome of sesquiterpenoid biosynthesis in heartwood xylem of Western Australian sandalwood (*Santalum spicatum*). Phytochemistry 113: 79-86. [While the terpene synthases in this and previously cloned sandalwoods do not explain the prevalence of *E,E*-farnesol in *S. spicatum*, the genes identified in this and previous work can form a basis for future studies on natural variation of sandalwood terpenoid oil profiles.]

*Moral, J., Lozano-Baena, M.D. and Rubiales, D. 2015. Temperature and water stress during conditioning and incubation phase affecting *Orobanche crenata* seed germination and radicle growth. Frontiers in Plant Science 6(June): 408. (http://journal.frontiersin.org/article/10.3389/fpls.2015.00408/full) [Seeds of *O. crenata* germinated between 5 and 30°C with a maximum around 20°C. and germination increased logarithmically with length of conditioning period up tol 40 days. The impact of the type of water stress on seed germination was similar, although the radicle growth of seeds under osmotic stress was lower than under matric stress, which could explain the lower infestation of *O. crenata* in regions characterized by saline soil.]

Moumouni, K.H., Kountche, B.A., Jean, M., Hash, C.T., Vigouroux, Y., Haussmann, B.I.G. and Belzile, F. 2015. Construction of a genetic map for pearl millet, *Pennisetum glaucum* (L.) R. Br., using a genotyping-by-sequencing (GBS) approach. Molecular Breeding 35(1): 5. [Overall, GBS enabled production of a genetic map with a density and uniformity of markers greater than previously published maps. The availability of such a map will be useful for the identification of genomic regions associated with *Striga* resistance and other important agronomic traits.]

Mujezinovic´, O., Treštic´, T., Čabaravdic´, A. and Dautbašic´, M. 2015. (The intensity of infection of stem silver fir *Abies alba* Mill. by white mistletoe *Viscum album* L. on Bosnia and Herzegovina area.) (in Croatian) Radovi Šumarskog Fakulteta Univerziteta u Sarajevu 43(2): 1-11. [Noting serious infestation of silver fir by *V. album* ssp. *abietis*.]

Murage, A.W., Pittchar, J.O., Midega, C.A.O., Onyango, C.O. and Khan, Z.R. 2015. Gender specific perceptions and adoption of the climate-smart push-pull technology in eastern Africa. Crop Protection 76: 83-91. [Concluding that women have a marginally greater appreciation of the benefits of the push-pull technology involving intercropping with *Desmodium* spp. for control of *Striga* spp.]

Mutuku, J.M., Yoshida, S., Shimizu, T., Ichihashi, Y., Wakatake, T.,Takahashi, A., Seo, M. and Shirasu, K. 2015. The *WRKY45*-dependent signaling pathway is required for resistance against *Striga hermonthica* parasitism. USA, Plant Physiology 168(3): 1152-1163. [The susceptibility phenotype in the *WRKY45*-knockdown plants was recovered by foliar JA application. These results point to a model in which *WRKY45* modulates a cross talk in resistance against *S. hermonthica* by positively regulating both SA/benzothiadiazole and JA pathways.]

Naitormmbaide, M., Djondang, K., Mama, V.J. and Koussou, M. 2015. Screening of some varieties of maize (*Zea mays* L.) for resistance to *Striga hermonthica* (Del) Benth in the Chadian savannah. Journal of Animal and Plant Sciences (JAPS) 24(1): 3722-3732. [Reporting increasing infestation of maize by *S. hermonthica* in Chad, associated with declining soil fertility. Maize varieties 2009TZE W-DT-STR and STR-W-2009TZEE proved resistant to *Striga.* giving grain yields of 4 t/ha compared with 2.3 t/ha in a control. Furthermore, greater straw yield, trampled in with animal manure contributed to improved fertility.]

Nardoni, S., Giovanelli, S., Pistelli, L., Mugnaini, L., Profili, G., Pisseri, F. and Mancianti, F. 2015. *In vitro* activity of twenty commercially available, plant-derived essential oils against selected dermatophyte species. Natural Product Communications 10(8): 1473-1478. [*Santalum*

album among 10 species tested but without apparently showing great activity.]

Neeraj Sharma. 2015. A restricted distribution of rare and endangered *Balanophora involucrata* Hook.f. and Thompson in Jammu and Kashmir, India. Indian Forester 141(5): 583-584. [Describing the distribution of *B. involucrata*. Also its morphology, habitat and medicinal properties.]

Nickrent, D.L. and García, M.A. 2015. *Lacomucinaea*, a new monotypic genus in Thesiaceae (Santalales). Phytotaxa 224:173-184. [A new monotypic genus from southern Africa is described based on *Thesium lineatum*: *Lacomucinaea lineata*. A molecular phylogeny shows it is most similar to *Osyridicarpos*. All remaining *Thesium* are now monophyletic.]

Nidhi Raju, Sakthivel, K.M., Narayanan Kannan, Prabhu, V.V. and Chandrasekaran Guruvayoorappan. 2015. *Cuscuta chinensis* ameliorates immunosuppression and urotoxic effect of cyclophosphamide by regulating cytokines - GM-CSF and TNF-alpha. Applied Biochemistry and Biotechnology 176(3): 742-757. [Confirming a chemoprotective role for '*C. chinensis'* (probably *C. campestris*?) against CTX-induced toxicities by regulating antioxidant and inflammatory mediators. In India.]

Nirmalnath, P.J., Meti, N., Sagarkar, M.A. Babu, R. Jagadeesh, K.S. 2015. Effectiveness of arbuscular mycorrhizal fungi against *Striga* emergence in sugarcane and sorghum. Proc.Volume II 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 133. [Addition of *Gigaspora margarita, Acaulospora laevis* (dose not stated) to field plots completely prevented emergence of *S. asiatica* in sorghum and in sugar cane. *Glomus macrocarpum* was not quite so effective.]

Nassirou, R.S., Ibrahim, M.L., Ilagouma, A.T., Mahamadou, A., Mamoudou, M., Abdoulaye, A., Oukem-Boyer, O.O.M. and Ikhiri, K. 2015. *In vitro* antiplasmodial activity of extracts of plants from traditional pharmacopea of Niger. Journal of Applied Biosciences 89: 8291-8299. [The results of this study justify the traditional use of *Ximenia americana* against malaria.]

Norsuhaila Abdul Wahab, Rohaina Ahdan, Zabidah Ahmad Aufa, Kong KinWeng, Mohd Hafizan Johar, Zalilah Mohd Shariff and Amin Ismail. 2015. Nutritional values and bioactive components of under-utilised vegetables consumed by indigenous people in Malaysia. Journal of the Science of Food and Agriculture 95(13): 2704-2711. [*Champereia manillana* (Opiliaceae) has high calcium content.]

Nutan Jadhav, Sangeeta Kulkarni, Arati Mane, Roshan Kulkarni, Aparna Palshetker, Kamalinder Singh, Swati Joshi, Arun Risbud and Smita Kulkarni. 2015. Antimicrobial activity of plant extracts against sexually transmitted pathogens. Natural Product Research 29(16): 1562-1566. [*Cuscuta reflexa* and *Cassytha filiformis* included in the study but apparently no outstanding results recorded.]

Oblinger, B.W. 2015. First report of white fir dwarf mistletoe (*Arceuthobium abietinum* f. sp. *concoloris*) on Engelmann spruce (*Picea engelmanii*) from Oregon. Plant Disease 99(7): 1041-1042. [Should read *P. engelmannii*.]

Ochoa, J.J. and Ladio, A.H. 2015. Wild plants with edible underground storage organs: cultural transmission about neglected resources in Patagonia (Argentina). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 14(4): 287-300. [Including observations on *Arjona tuberosa* (Santalaceae).]

Ogbole, O.O., Adeniji, J.A. and Ajaiyeoba, E.O. 2015. Cytotoxicity evaluation of sixteen Nigerian medicinal plant extracts using the human rhabdomyosarcoma cell line. Nigerian Journal of Natural Products and Medicine 18: 1-6. [*Thonningia sanguinea* failed to show cytotoxic effects against this cancer cell line.]

Ogunmefun, O.T., Ekundayo, E.A., Ogunnusi, T.A., Olowoyeye, A.H., Fasola, T.R. and Saba, A.B. 2015. Antimicrobial activities of *Phragmanthera incana* (Schum.) Balle, a mistletoe species harvested from two host plants against selected pathogenic microbes. Annual Research & Review in Biology 8(3): ARRB.14947. [Confirming a moderate antimicrobial potential of the extracts of *P. incana*. Extracts from plants growing on kolanut were found to be more effective than from those growing on cocoa.]

Okazawa, A. and Wakabayashi, T. 2014. Development of parasitic weed control method by metabolic analysis. Seibutsu-kogaku Kaishi 92(10): 549-552. [Reporting the discovery of nojirimycin a glycol hydrolysis inhibitor, which inhibits the germination of *Orobanche. minor* as well as inhibiting the root growth of other plants including *Striga* and *Phtheirospermum* spp. Instability in soil means it will be necessary to find more stable analogues.]

Omoigui, L.O., Ishiyaku, M.F., Gowda, B.S., Kamara, A.Y. and Timko, M.P. 2015. Suitability and use of two molecular markers to track race-specific resistance (to) *Striga*

gesnerioides in cowpea (*Vigna unguiculata* (L.) Walp.). African Journal of Biotechnology 14(27): 2179-2190. [SCAR markers, 61RM2 and C42-2B were identified having 98% and 96% efficiency respectively in identifying resistance to races SG1, SG3 and SG5 of *Striga gesnerioides*.]

Ondoua, J.M., Dibong, S.D., Taffouo, V.D. and Ngotta Biyon, J.B. 2015. (Parasitism of cocoa seed fields by Loranthaceae in the locality of Nkoemvone (southern Cameroon).) (in French) Journal of Applied Biosciences. 85: 7794-7803. [Five species recorded on cocoa, the commonest being *Phragmanthera capitata*; others were *Globimetula dinklagei, Phragmanthera nigritana, Tapinanthus ogowensis* and *Tapinanthus preussii.* In the absence of other control methods it is suggested to plant mistletoe-resistant clones ICS 46 and UPA 146.]

Özaslan, C.and Gürsoy, S. 2015. The effect of conventional and reduced tillage systems on grain yield and weed species density in common vetch (*Vicia sativa* L.) production. Agriculture and Forestry 61(3): 53-59. [Listing unspecified *Cuscuta* sp. in vetch in Turkey.]

Pantò, S., Sciarrone, D., Maimone, M., Ragonese, C., Giofrè, S., Donato, P., Farnetti, S. and Mondello, L. 2015. Performance evaluation of a versatile multidimensional chromatographic preparative system based on three-dimensional gas chromatography and liquid chromatography-two-dimensional gas chromatography for the collection of volatile constituents. Journal of Chromatography, A 1417: 96-103. [Techniques described for the estimation of components of oil from *Santalum album*.]

Pardeep Kumar, Shakywar, R.C. and Khan, M.N. 2015. Antiviral activity of botanicals against Elephant foot yam infected with mosaic disease. Annals of Plant Protection Sciences 23(2): 319-322. [A *Cuscuta reflexa* spray provided substantial reduction in mosaic disease in *Amorphophallus paeoniifolius*.]

Parker, C. 2015. Parasitic weeds and their control: are we winning? In: Rao, A.N. and Yaduraju, N.T. Weed Science for Sustainable Agriculture, Environment and Biodiversity. Volume I. Proceedings, 25th Asian-Pacific Weed Science Society Conference; Hyderabad, India 13-16 October, 2015. [Sorry – me again. A general review. And the answer, after 7,900 words? – not really.]

Parwati, N.W.M., Lindayani, I.K., Ratnawati, R., Winarsih, S. Nurseta, T. 2015. Possible effect of tea plant parasite, *Scurrula atropurpurea* (Blume) Danser, on growth inhibition of culture HeLa cells *in vitro* through DNA repair and apoptosis intrinsic pathways mechanism. Asian Pacific Journal of Tropical Disease 5(9): 743-746. [The results showed an effect of the *S. atropurpurea* extract on inhibition of HeLa cell culture growth.]

Patel, J.N. and Patel, N.K. 2015. Ethnobotanical uses of wild plants from Amirgadh Taluka, Banaskantha Dist., Gujarat. Lifesciences Leaflets 67: 142-147. [Plants used by a tribal group who live in dense forest far away from hospitals, include '*Cuscuta chinensis*' (probably *C. campestris*).]

Pathak, A. and Kannan, C. 2015. Biological management of *Orobanche crenata* on tomato using native fungi and their metabolites. Proc.Volume II 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 136. [Seed treatment with *Penicillium oxalicum* followed by soil drenches at 25 and 50 days gave 80% reduction in '*O. crenata'* (fortunately for India - as that is where the work was done - a mis-identification of *O. cernua*) *Fusarium oxysporum* was somewhat less effective.]

Patil, S.D., Agrawal, S.A., Biyani, K.R. and Agrawal, A.M. 2015. Screening of antimicrobial potential of oleanolic acid isolated from *Viscum articulatum* Burm. World Journal of Pharmaceutical Research 4(5): 2166-2172. [Confirming the activity of pentacyclic triterpenoids in *V. articulatum* against a range of pathogens including *E. coli*.]

Patrick-Iwuanyanwu, K.C., Sajjad Ali, Choudhary, M.I., Muhammad Ismail and Saima Rasheed. 2015. *In vitro* antioxidant and antiglycation studies on African mistletoe (*T. bangwensis* (Engler and K. Krause), Danser) and ring worm plant (*S. alata* (Linn.) Roxb) from Nigeria. Journal of Biodiversity and Environmental Sciences (JBES) 6(1): 378-386. [Confirming that extracts of *T. bangwensis* leaves showed antioxidant and antiglycation properties.]

Petersen, G., Cuenca, A. and Seberg, O. 2015. Plastome evolution in hemiparasitic mistletoes. Genome Biology and Evolution 7(9): 2520-2532. [Complete plastome sequences are reported for *Osyris alba*, *Viscum album*, *V. crassulae*, and *V. minimum*. All are smaller than typical non-parasitic angiosperms, with intergenic spacer size reductions, but most notable are gene losses or pseudogenizations of protein-coding genes including all 11 ndh genes.]

Piwowarczyk, R. and Jankowska-Błaszczuk, M. 2014. Intra-specific diversity of seed

productivity and morphological features in parasitic species *Orobanche bartlingii* Griseb. (Orobanchaceae). Polish Journal of Ecology 62(4): 723-738. [A detailed study of seed size and production in *O. bartlingii*, a rare, endangered species in Poland, occurring mostly on *Libanotis pyrenaica*.]

Pratima Gautam and Richhariya, G.P. 2015. Ethnoveterinary medicinal plants used by tribal's and rural communities of Chitrakoot, Distt.-Satna (M.P.). International Journal of Pharmacy and Life Sciences (IJPLS) 6(4): 4427-4430. [*Cuscuta reflexa* among 23 plants used in traditional veterinary medicine.]

Preston, C.D. and Pearman, D.A. 2015. Plant hybrids in the wild: evidence from biological recording. Biological Journal of the Linnean Society 115(3): 555-572. [Reviewing the occurrence of natural hybrids in UK and noting that there are few annual or biennial hybrids except for numerous annual *Euphrasia* hybrids.]

Prider, J. 2015. The reproductive biology of the introduced root holoparasite *Orobanche ramosa* subsp. *mutelii* (Orobanchaceae) in South Australia. Australian Journal of Botany 63(5): 426-434. [Identifying characters that contribute to the success of this introduced plant, including self-pollination, rapid maturation of the reproductive stages and high seed output, up to 200,000 seeds per plants. Vigilance is required so that plants can be controlled before they set seed.]

Punia, S.S. and Duhan, A. 2015. Innovations in management of *Orobanche* in mustard. India Farming 65(7): 29-33. [A general review relating especially to Harayana state, India. Apart from cultural practices giving partial control, overall sprays twice with glyphosate at 25 and 50 g/ha can control the *Orobanche* (not specified but presumably *O. aegyptiaca*) with some modest increases in yield.]

Qu ZhengYi, Zhang YuWei, Yao ChunLin, Jin YinPing, Zheng PeiHe, Sun ChengHe, Liu JunXia, Wang YuShuai and Wang YingPing. 2015. Chemical constituents from *Orobanche cernua* Loefling. Biochemical Systematics and Ecology 60: 199-203. [Identifying 17 compounds, including eleven phenylpropanoid glycosides, two flavonoids, one lignan, and three phenolic acids isolated from the fresh whole plant of '*O. cernua*'. (not certain whether this is *O. cernua s.s.* or could be *O. cumana*?)].

Queijeiro-Bolaños, M.E. and Cano-Santana, Z. 2015. Temporal dynamics of dwarf mistletoe infestation (*Arceuthobium globosum* and *A. vaginatum*) in Zoquiapan CienciaUAT 9(2): 6-14. [Studying changes over time in populations of *A. vaginatum* and *A. globosum* on *Pinus hartwegii* in Mexico in relation to fire and logging.]

Qian Xiong, Xu ShaoZhong, Zhao ChangLing, Meng HengLing and Wen GuoSong. 2015. cDNA cloning and expression analyses of the isoflavone reductase-like gene of *Dendrobium officinale*. Pakistan Journal of Botany 47(4): 1265-1270. [The full length of the isoflavone reductase-like gene (*IRL*) cDNA of *Dendrobium officinale* was cloned and its expression levels were determined in organs and tissues of *D. officinale* plants at different ages. The nearest phylogenetic relationship was with phenylcoumaran benzylic ether reductase (PCBER) of *Striga asiatica. DoIRL* was expressed in all organs and tissues of *D. officinale* plants at different ages at comparatively low levels, whereas the highest expression was in leaves of two-year-old plants.

Rafiqul Islam, Rahman, M.S., Riad Hossain, Nazmun Nahar, Belal Hossin, Abir Ahad and Rahman, S.M. 2015. Antibacterial activity of combined medicinal plants extract against multiple drug resistant strains. Asian Pacific Journal of Tropical Disease 5(Suppl.1): S151-S154. [*Cuscuta reflexa* part of a four-species mixture showing activity against a range of drug-resisant bacteria.]

Ragasa, C.Y., Ng, V.A.,S. Ulep, R.A., Brkljača, R. and Urban, S. 2015. Chemical constituents of *Champereia manillana* (Blume) Merrill. Der Pharmacia Lettre 7(7): 256-261. [Constituents of *C. manillana* (Opiliaceae) include squalene, lutein, carotene, phytoland 1,2-dilinoleoyl-3-linolenoylglycerol.]

Ramachandra Prasad, T.V., Mishra, J.S. and Girija, T. 2015. Management of parasitic weeds in India. 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India. Souvenir 20-24. [Reviewing occurrence and control of parasitic weeds in India, especially *Orobanche aegyptiaca* in mustard, *O. cernua* in tobacco; *Striga asiatica* and *S. densiflora* in cereals (noting that the new hybrids of pearl millet are generally not attacked); *Cuscuta campestris* and *C, reflexa* (noting useful resistance to *C. campetsris* in some lucerne, green gram and black gram varieties); and mistletoes, especially *Dendrophthoe falcata* in a wide range of forest and fruit species (noting control by 2,4-D and ethephon).]

Ramírez-Cisneros, M.Á., Rios, M.Y., Aguilar-Guadarrama, A.B., Rao, P.P.N., Aburto-Amar, R. and Rodríguez-López, V. 2015. In vitro

COX-1 and COX-2 enzyme inhibitory activities of iridoids from *Penstemon barbatus*, *Castilleja tenuiflora*, *Cresentia alata* and *Vitex mollis*. Bioorganic & Medicinal Chemistry Letters 25(20): 4505-4508. [Noting *C. tenuifolia* among plants used as anti-inflamatory remedies in Mexico apparently associated with their content of loganic acid.]

Rao, B.R.P., Bheemalingappa, M., Naik, M.C., Prasad, K., Babu, M.V.S. and Ganeshaiah, K.N. 2015. Seven angiosperm species, new records for Andaman and Nicobar Islands, India. Indian Journal of Forestry 38(1): 71-73. [Recording *Santalum album* apparently for the first time.]

Raszka, B., Zienkiewicz, A., Kalbarczyk, R. and Kalbarczyk, E. 2014. Revitalization of urban courtyards in Wrocław (southwestern Poland). Polish Journal of Natural Sciences 29(3): 225-237. [*Viscum album* mentioned but not clear in what context.]

Ratnaningrum, Y.W.N., Indrioko, S., Trihartono, A. and McLellan, B. 2015. Response of flowering and seed production of sandalwood (*Santalum album* Linn., Santalaceae) to climate changes. Procedia Environmental Sciences 28: 665-675. [A detailed study of seed production of *S. album* over 2005 to 2010 in relation to rainfall and temperature. Concluding that dry seasons lead to higher seed production that wet ones.]

Raza, M A. and Fareeha Mukhtar. 2015. *Cuscuta reflexa* and *Carthamus oxyacantha*: potent sources of alternative and complimentary drug. SpringerPlus 4: 76. [Detecting antioxidant activity in *C. reflexa* apparently associated with phenolics.]

Renna, M., Serio, F., Santamaria, P. 2015. Crenate broomrape (*Orobanche crenata* Forskal): prospects as a food product for human nutrition. Genetic Resources and Crop Evolution 62(5): 795-802. [Noting the potential nutritional value from fibre content, good antioxidant capacity and presence of polyphenols such as verbascoside in *O. crenata,* but also the need for further research on its properties.]

Roh HyunSik, Kim JunHeon, Shin EunSik, Lee DongWoon, Choo HoYul and Park ChungGyoo. 2015. Bioactivity of sandalwood oil (*Santalum austrocaledonicum*) and its main components against the cotton aphid, *Aphis gossypii*. Journal of Pest Science 88(3): 621-627. [Oil of *Santalum austrocaledonicum*was is shown to have components with high activity against *A. gossypii* infesting *Hibiscus syriacus*, comparable to that of nictinoid insecticide]

Rose, A., El-Leithy, T., Vom Dorp, F., Zakaria, A., Eisenhardt, A., Tschirdewahn, S. and Rübben, H. 2015. Mistletoe plant extract in patients with nonmuscle invasive bladder cancer: results of a phase Ib/IIa single group dose escalation study. Journal of Urology 194(4): 939-943. ['In this study intravesical instillation of mistletoe (presumably *Viscum album*) extract as treatment in patients with nonmuscle invasive bladder cancer was shown to be safe and well tolerated. Promising data on efficacy were observed and will be further investigated in a phase III study.']

Saleh, Z., Zuhud, E.A.M.and Sari, R.K. 2015. Phytochemical screening and antioxidant activity of ethanolic extract of *Rhizanthes deceptor* (Rafflesiaceae) and its host *Tetrastigma papillosum*. Research Journal of Medicinal Plant 9(6): 293-299. [Concluding that that *R. deceptor*, endemic to Sumatra, Indonesia, and *T. papillosum* are good natural sources of antioxidant.]

Samejima, H. and Sugimoto, Y. 2015. (Outcomes of research on controlling a root parasitic weed, *Striga hermonthica*, and extension activities for farmers in Gadaref State, Sudan.) (in Japanese) In: Symposium on 'Researches in tropical agriculture and the implementation in society: how is the output adapted to a community?'.Research for Tropical Agriculture 8(1): 11-14. [No English abstract available.]

Sangüesa-Barreda, G., Camarero, J.J., Linares, J.C., Hernández, R., Oliva, J., Gazol, A., González de Andrés, E., Montes, F., García-Martín, A. and de la Riva, J. 2015. (Role of biotic factors and droughts in the forest decline: contributions from dendroecology.) (in Spanish) Ecosistemas 24(2): 15-23. [Studying the combined effects of drought and mistletoe (presumably *Viscum album*) with the pine processionary moth on *Pinus* spp. in Spain.]

Santha, S. and Dwivedi, C. 2015. Anticancer effects of sandalwood (*Santalum album*). Anticancer Research 35(6): 3137-3145. [A review which discusses studies that support the anticancer effect and the mode of action of sandalwood oil and α-santalol in carcinogenesis.]

Satou, T., Ogawa, Y. and Koike, K. 2015. Relationship between emotional behavior in mice and the concentration of (+)-α-santalol in the brain. Research 29(8): 1246-1250. [Results support results obtained previously using the Morris maze test in the same mouse model of senescence, and the use of traditional medicinal herbs containing acteoside (from *Cistanche deserticola*) for neuroprotection and memory loss.]

Scalon, M.C. and Wright, I.J. 2015. A global analysis of water and nitrogen relationships between mistletoes and their hosts: broad-scale tests of old and enduring hypotheses. Functional Ecology 29(9): 1114-1124. [Studying two hypotheses relating to mistletoes a) that high transpiration is needed to satisfy nitrogen requirement and b) that leaf mimicry reduces herbivory. Studies on 168 mistletoe/host pairs suggest that N is NOT particularly limiting and that the mimicry hypothesis is also not clearly suported.]

Schelkunov, M.I. Shtratnikova, V.Yu., Nuraliev, M.S., Selosse, M.A., Penin, A.A. and Logacheva, M.D. 2015. Exploring the limits for reduction of plastid genomes: a case study of the mycoheterotrophic orchids *Epipogium aphyllum* and *Epipogium roseum*. Genome Biology and Evolution 7(4): 1179-1191.

Schut, M., Rodenburg, J., Klerkx, L., Hinnou, L.C., Kayeke, J. and Bastiaans, L. 2015. Participatory appraisal of institutional and political constraints and opportunities for innovation to address parasitic weeds in rice. Crop Protection 74: 158-170. [Identifying the need for raising awareness of parasitic weed problems among farmers, extension and crop protection officers at the local level, combined with improved input and service supply and enhanced agricultural education and training curricula at the national level, as important elements for improvement.]

Selvadurai, S., Rao, A.V., Kiruba, T.V. and Dhanaraju, M.D. 2015. Pharmacognostical studies on leaf of *Ximenia americana* Linn. World Journal of Pharmacy and Pharmaceutical Sciences 4(8): 739-742. [Describing various properties and characters of *X. americana*,of uncertain relevance to its use as a medicinal plant.]

*Senait Girma, Mirutse Giday, Berhanu Erko and Hassen Mamo. 2015. Effect of crude leaf extract of *Osyris quadripartita* on *Plasmodium berghei* in Swiss albino mice. BMC Complementary and Alternative Medicine 15(184): (16 June 2015). (http://www.biomedcentral.com/1472-6882/15/184) [The study supports the traditional use of *O. quadripartita* for the treatment of malaria. However, further confirmatory studies including the isolation and characterization of the active anti-malarial compound are needed.]

Seok Joon, Kim TaeSu, Kwon HyunJung, Lee SungPyo, Kang MyungHwa, Kim BeomJoon and Kim MyeungNam. 2015. Efficacy of *Cistanche tubulosa* and *Laminaria japonica* extracts (MK-R7) supplement in preventing patterned hair loss and promoting scalp health. Clinical Nutrition Research 4(2): 124-131. [*C. tubulosa* is reported to have anti-oxidative, anticoagulant, anti-cancer and anti-inflammatory properties, and in this study, showed promise for promoting health of the scalp and hair.]

Seregin, A.P. 2015. Expansions of plant species to the flora of Vladimir oblast (Russia) in the last decade. Second report. Russian Journal of Biological Invasions 6(3): 202-221. [Reviewing the expansion of 10 species including *Cuscuta campestris*.]

Shinde, A.A., Torane, S.R., Talathi, J.M. and Kshirsagar, P.J. 2015. Technologies adoption, resource use and technical efficiency in Alphonso mango production. Asian Journal of Horticulture 10(1): 64-70. [Incidentally noting low adoption (17%) of the 'Amar Loranthus cutter' a device available in India for cutting off branches infested with mistletoes.]

Shomar, A., Al-Hussein, N., Al-Shamaa, K. and Bayaa, B. 2015. Effect of some herbicides in controlling broomrapes (*Orobanche* spp.) and major weeds in food legume (chickpea, lentil and faba bean) crops. Arab Journal of Plant Protection 33(2): 164-176. [Reporting effects of a mix of imazethapyr and pendimethalin applied twice, pre- and early post-emergence, for control of *Orobanche* spp. and other weeds. Results unsatisfactory in chickpea and lentil but useful in faba bean.]

Shori, A.B. 2015. Screening of antidiabetic and antioxidant activities of medicinal plants. Journal of Integrative Medicine 13(5): 297-305. [*Santalum spicatum* among species showing antioxidant properties in studies in Australia.]

Skippington, E., Barkman, T.J., Rice, D.W. and Palmer, J.D. 2015. Miniaturized mitogenome of the parasitic plant *Viscum scurruloideum* is extremely divergent and dynamic and has lost all *nad* genes. Proceedings of the National Academy of Sciences of the United States of America 112(27): E3515-E3524. [This is another example of the use of powerful tools of genomic studies to better understand parasitism. The authors looked at the mitochondrial genome of this mistletoe and report the loss of Respiratory Complex I, the only known multicellular organism with this feature. The authors refer to this mistletoe as having a 'onderfully bizarre mitogenome' The paper discusses other components of the mitogenome and relate it to the parasitic behavior of the plant. The Palmer lab in Indiana has been a leader in such studies.]

Sodde, V.K., Lobo, R., Kumar, N., Maheshwari, R. and Shreedhara, C.S. 2015. Cytotoxic activity of *Macrosolen parasiticus* (L.) Danser on the growth of breast cancer cell line (MCF-7). Pharmacognosy Magazine 11(42 (Suppl.): 156-160. [A range of tests confirmed significant cytotoxic activity. However the aqueous extract of *M. parasiticus* demonstrated higher activity against MCF-7 breast cancer cells than the methanolic.].

Soler, R., Martínez Pastur, G., Lencinas, M.V. and Peri, P.L. 2015. Mistletoes and epiphytic lichens contribute to litter input in *Nothofagus antarctica* forests. Acta Oecologi 68: 11-17. [Studying the contribution of unspecified *Misodendrum* sp. (Misodendraceae) to leaf litter below its host *N. antarctica* in Argentina.]

Soro, T.Y., Néné-bi, A S, Zahoui, O.S., Yapi, A. and Traoré, F. 2015. (Antipyretic activity of aqueous extract from *Ximenia americana*.) (in French) Journal of Animal and Plant Sciences 24(3): 3802-3813. [Results support the traditional use of *X. americana* stem bark as an `anti-inflammatory.]

Souza, É.S.C., Chaves, Z.M., Soares, W.R.O., Pinho, D.B. and Dianese, J.C. 2015. *Uromyces hawksworthii* nom. nov. for *Aecidium goyazense*, on *Phthirusa stelis* (*Loranthaceae*) from the Brazilian Cerrado. IMA Fungus 6(1): 155-162.

Stournaras, K.E., Prum, R.O. and Schaefer, H.M. 2015. Fruit advertisement strategies in two Neotropical plant-seed disperser markets. Evolutionary Ecology 29(4): 489-509. [Including reference to *Heisteria scandens* but no detail in abstract.]

Stoyanov, K. 2013. Distribution and environmental characteristics of *Orobanche gracilis* in Bulgaria. Ecology and Future - Journal of Agricultural Science and Forest Science 12(2): 22-30. [Recording *O. gracilis* and its infraspecific taxa in Bulgaria, noting one subregion is added to the distribution of *O. gracilis* var. *sprunerii* and the 'exclusion' (absence?) of *O. rapum-genistae*.]

Suetsugu, K. 2015. Seed dispersal of the hemiparasitic plant *Thesium chinense* by *Tetramorium tsushimae* and *Pristomyrmex punctatus*. Entomological Science 18(4): 523-526. [Reporting collection of seeds of *T. chinense* in Japan by ants and storage in nests providing protection from the seed predator *Canthophorus niveimarginatus* and placing them close to roots of grasses on which it is partasitic.]

Sui XiaoLin, Huang Wei, Li YunJu, Guan KaiYun and Li AiRong. 2015. Host shoot clipping depresses the growth of weedy hemiparasitic *Pedicularis kansuensis*. Journal of Plant Research 128(4): 563-572. [Clipping the host *Elymus nutans* significantly reduced growth of *P. kansuensis* without affecting the productivity of the host, suggesting grazing should help to reduce the parasite.]

Sujith Thomas, Sapna Shrikumar, Velmurugan, C. and Kumar, B.S.A. 2015. Evaluation of anxioltic effect of whole plant of "*Cuscuta reflexa*". World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS) 4(4): 1245-1253. [Confirming the anxiolytic activity (ie. suppressing anxiety) of *C. reflexa* extracts in mice.]

Surendra Singh, Shekhawat, B.S. and Savitri Sharma. 2015. Management of *Orobanche* in mustard. Proc. Volume III (posters) 25th Asian-Pacific Weed Science Society Conference, Hyderabad, India, October 13-16, 2015: 488. [Pyrazosulfuron ethyl at 200 g/ha, pre-plant incorporated was the best of a range of herbicides, providing good selective control of unspecified *Orobanche* (probably *O. aegyptiaca*). Imazapic post-emergence was also good.]

Světlíková, P., Hájek, T. and Těšitel, J. 2015. Hydathode trichomes actively secreting water from leaves play a key role in the physiology and evolution of root-parasitic rhinanthoid Orobanchaceae. Annals of Botany 116(1): 61-68. [Studies with *Rhinanthus alectrophorus* provide the first unequivocal evidence for the role of hydathode trichomes in active water secretion in the rhinanthoid Orobanchaceae. The direct effect of water secretion on carbon balance ranges from close to neutral to positive. 'It is likely to be more positive in the xylem-only feeding holoparasites of the genus *Lathraea*, which is closely related to *Rhinanthus*.' Thus, water secretion by the hydathodes might be viewed as a physiological pre-adaptation in the evolution of holoparasitism in the rhinanthoid lineage of Orobanchaceae.]

Tanino, T., Nagai, N. and Funakami, Y. 2015. Phloridzin-sensitive transport of echinacoside and acteoside and altered intestinal absorption route after application of *Cistanche tubulosa* extract. Journal of Pharmacy and Pharmacology 67(10): 1457-1465. ['The dietary and medicinal *C. tubulosa* extract enhancing the intestinal absorption of ECH and ACT may serve to better

manage human health, although the involvement of phloridzin-sensitive transport should be reduced.']

Tarantino, E., Lops, F., Disciglio, G., Carlucci, A., Gatta, G. and Frabboni, L. 2015. (Contain *Phelipanche ramosa* on processing tomatoes.) (in Italian) Informatore Agrario 71(33): 68-71. [*P. ramosa* could be decreased with deep ploughing (50 cm). Among other control methods the bio-stimulating Radicon compost activated with *Fusarium oxysporum*, mineral nitrogen fertilizer, sulphur and use of improved cultivars resistant to the parasite gave adequate control, with obvious positive impact on yield.]

Tashev, A. 2015. New data on dendroflora of Western Sredna Gora Mountain, Bulgaria. Journal of Balkan Ecology 13(1): 17-21. [Recording a new locality for *Arceuthobium oxycedri*.]

Teves, M.R., Wendel, G.H. and Pelzer, L.E. 2015. *Jodina rhombifolia* leaves lyophilized aqueous extract decreases ethanol intake and preference in adolescent male Wistar rats. Journal of Ethnopharmacology 174: 11-16. [The results help to validate the antialcoholic uses of *J. rhombifolia* (Santalaceae) in Argentine folk medicine.]

Tirhas Mulugeta, Unnithan, C.R., Desta Tesfaysc and Yohannes Wemariam. 2015. Chemical composition and antibacterial activities of the essential oils of *Ximenia americana* leaves. World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS), 4(9): 916-923. [Oil from *X. americana* showed high activity against *Staphylococus aureus* and *S. pyogenes* and average effectiveness against *Pseudomonas aeuruginosa*.]

Toh, S., Holbrook-Smith, D., Stogios, P.J., Onopriyenko, O., Lumba, S., Tsuchiya, Y., Savcxhenko, A. and McCourt, P.M. 2015. Structure-function analysis identifies highly sensitive strigolactone receptors in *Striga.* Science 350(6257): 203-207. (https://www.sciencemag.org/content/350/6257/203.abstract) [The function of 11 strigolactone receptors from the parasitic plant *Striga hermonthica* using chemical and structural biology was characterized. A clade of polyspecific receptors, including one that is sensitive to picomolar concentrations of strigolactone was identified. A crystal structure of a highly sensitive strigolactone receptor from *Striga* revealed a larger binding pocket than that of the *Arabidopsis* receptor. By expressing strigolactone receptors in *Arabidopsis*, a bioassay that can be used to identify chemicals and crops with altered strigolactone levels was developed.]

Tóthová, A. 2015. Floristic properties of meadows in the cadastre of Hodruša-Hámre village in Štiavnické Vrchy Mountains. In: Hudec, M. and Csáky, A. (eds) Scientia Iuvenis: Book of scientific papers, 15th International Scientific Conference of Phd students, young scientists and pedagogues, 22 October 2014, Nitra, Slovakia: 157-166. [Listing *Orobanche elatior* as 'vulnerable' as a result of grassland being lost to woodland in Slovakia.]

Traoré, M.S., Baldé, M.A., Camara, A., Baldé, E.S., Diané, S., Diallo, M.S.T., Keita, A., Cos, P., Maes, L., Pieters, L. and Baldé, A.M. 2015. The malaria co-infection challenge: an investigation into the antimicrobial activity of selected Guinean medicinal plants. Journal of Ethnopharmacology 174: 576-581. [*Ximenia americana* showed useful activity against *Candida albicans* but not against other pathogens tending to co-occur with malaria - *Trichophyton rubrum*, *Aspergillus fumigatus*, *Mycobacterium chelonae*, *Staphylococcus aureus* and *Escherichia coli*.]

Treštic´, T. and Mujezinovic´, O. 2015. (Occurrence of pine mistletoe/*Viscum album* ssp. *austriacum* (Wiesb.) Vollmann./in Bosnia and Herzegovina.) (in Croatian) Naše Šume 14(38/39): 15-22. [Reporting a high intensity of infection and some trees already dead or dying in the studied area, especially on dry and rocky soils.]

Trevisan, S., Manoli, A., Ravazzolo, L., Botton, A., Pivato, M., Masi, A. and Quaggiotti, S. 2015. Nitrate sensing by the maize root apex transition zone: a merged transcriptomic and proteomic survey. Journal of Experimental Botany 66(13): 3699-3715. [New details of the transcriptomic and proteomic responses to nitrate availability in maize seedlings roots are presented. The results highlighted a complex transcriptomic and proteomic reprogramming that occurs in response to nitrate, emphasizing the role of this root zone in sensing and transducing nitrate signal. A relationship of nitrate with biosynthesis and signalling of several phytohormones, such as auxin, strigolactones, and brassinosteroids is evident, as well as to cytoskeleton activation and cell wall modification.]

Tsuchiya, Y., Yoshimura, M. Sato, Y., Kuwata, K., Toh, S., Holbrook-Smith, D., Zhang, H., McCourt, P., Itami, K. and Kinoshita, T. 2015. Probing strigolactone receptors in *Striga hermonthica* with fluorescence. Science

349(6250): 864-868. [see Literataure Highlight above.]

Ueno, K., Sugimoto, Y. and Zwanenburg, B. 2015. The genuine structure of alectrol: end of a long controversy. Phytochemistry Reviews 14(5): 835-847. [Establishing the genuine structure of alectrol, the stimulant for *Striga gesnerioides* isolated from cowpea. Please notice that structures of orobanchol and alectrol (orobanchyl acetate) have been revised]

van der Ent, A. and Wong, K.M. 2015. Range extension of *Christisonia scortechinii* from mainland Southeast Asia into Borneo, and notes on the distinction between *Aeginetia* and *Christisonia* (Orobanchaceae). Botanical Studies 56: 28. [This taxonomic study concludes that *C. scortechinii* is more widespread than previously thought, including Laos, China, Borneo and the Philippines. *Christisonia sinensis* and *C. wightii* are reduced to synonyms of *C. scortechinii*.]

Vidal-Russell, R. and Premoli, A.C. 2015. *Nothofagus* trees show genotype difference that influence infection by mistletoes, Misodendraceae. Australian Journal of Botany 63(6): 541-548. [Allozymes were used to test for genetic differences between host *Nothofagus* trees infected or not infected by *Misodendrum*. Sites with higher degrees of infection by *M. punctulatum* were distinguished in the ordination, and host genetic structure could be maintained by the mistletoe via host selection.]

von Schoen-Angerer, T., Madeleyn, R., Kienle, G., Kiene, H. and Vagedes, J. 2015.*Viscum album* in the treatment of a girl with refractory childhood absence epilepsy. Journal of Child Neurology 3(8) 1048-1052. [*V. album* appears to have been a necessary adjunct treatment for this child to become free of epileptic seizures (in Germany).]

Wakabayashi, T. and 13 others. 2015. Planteose as a storage carbohydrate required for early stage of germination of *Orobanche minor* and its metabolism as a possible target for selective control. Journal of Experimental Botany 66(11): 3085-3097. [Results suggest that planteose is a storage carbohydrate required for theearly stage of germination of *O. minor*. Nojirimycin bisulfite was found to alter the sugar metabolism and to selectively inhibit the germination of *O. minor*. It also inhibited radicles in *Striga hermonthica* and *Phtheirospermum japonicum*, suggesting it could be a promising starting point from which to develop specific herbicides against these parasites.]

Wang ShaoXiang, Cheng Jun and Feng JianMeng. 2015. Geographical patterns of *Pedicularis* (Scrophulariaceae) in Northwest Yunnan, Southwest China. Journal of Chongqing Normal University (Natural Science) 32(5): 137-143. [Identifying 166 species of *Pedicularis*, belonging to 61 'series' and 13 'grexes', the most important grexes being *Rhizophyllum*, *Brachyphyllum*, *Pedicularis and Apocladus*, and important 'series' bring. *Longiflorae*, *Verticillatae*, *Lyratae* and *Carnosae*. Species diversity increased with latitude.]

*Wintola, O.A. and Afolayan, A.J. 2015. The antibacterial, phytochemicals and antioxidants evaluation of the root extracts of *Hydnora africana* Thunb. used as antidysenteric in Eastern Cape Province, South Africa. BMC Complementary and Alternative Medicine 15: 307. (http://www.biomedcentral.com/1472-6882/15/307). [Methanol and acetone extracts of *H. africana* exhibited significant antibacterial and antioxidant activities.]

Xavery, D.K. and Feyissa, T. 2015. Prospects of biotechnological approaches for propagation and improvement of threatened African Sandalwood (*Osyris lanceolata* Hochst. & Steud.). American Journal of Plant Sciences 6(11): 1822-1826. [Noting that tissue culture appears to be a promising approach for the propagation and conservation of *O. lanceolata*.]

Yang BeiFen, Li JunMin, Zhang Jing and Yan Ming. 2015. Effects of nutrients on interaction between the invasive *Bidens pilosa* and the parasitic *Cuscuta australis*. Pakistan Journal of Botany 47(5): 1693-1699. [Showing that nutrient addition significantly increased the damage caused by *C. australis* on *B. pilosa* and suggesting that *C. australis* could perhaps be considered as a means of biological control of *B. pilosa*.]

Yeni, W.N.R. and Sapto, I. 2014. Variation on genotypes and flowering characters affecting pollination mechanisms of sandalwood (*Santalum album* Linn., Santalaceae) planted on *ex-situ* gene conservation in Yogyakarta, Indonesia. Eurasian Journal of Forest Research 17(1): 19-34. [Recording 6 types of insect visitors to flowers of *S. album* - moths, butterflies, flies, ants, bees and wasps. Type of insect and visitation rate depended on flowering phases in term of primary (pollen and nectar) and secondary (color of perigonium and mature anthers) attractants availability.]

Yobo, C.M. and Ito, K. 2014. Availability and size class distribution of the most popular indigenous fruits trees and implications for sustainable harvest around the Ivindo National Park, Gabon. International Journal of

Biodiversity and Conservation 6(11): 777-789. [Including discussion of *Coula edulis* (Olacaceae) and the degree to which it is being overharvested in the wild and the need to encoiurage on-farm cultivation.]

*Yu WenBin, Liu MinLu, Wang Hong, Mill, R.R., Ree, R.,H.; Yang JunBo and Li DeZhu. 2015. Towards a comprehensive phylogeny of the large temperate genus *Pedicularis* (Orobanchaceae), with an emphasis on species from the Himalaya-Hengduan Mountains. BMC Plant Biology 15: 176, (11 July 2015) (http://www.biomedcentral.com/1471-2229/15/176) [Nuclear ITS and three plastid regions were used to generate a molecular phylogeny of 257 species of *Pedicularis* representing 104 out of 130 series in the classification system of Tsoong. Species with opposite-/whorled-leaved were monophyletic but overall there was little correlation between the phylogenetic tree and the morphology-based classification.]

Yuan, Y., Zhou, R., Fu, J., Zhao, J. and Lu, Z. 2015. First report of dodder (*Cuscuta japonica*) on *Dictamnus dasycarpus* in China. Plant Disease 99(9): 1285. [Reporting a first occurrence , in northeast China.]

Zanjanchia, P. and Mehrvarza, S.S. 2015. The generic position of *Loranthus grewingkii* of Lorantheae (Loranthaceae) inferred from the nuclear ribosomal internal transcribed spacer (ITS) and chloroplast *trnL-F* sequences: a case study on *Loranthus* in Iran. Webbia: Journal of Plant Taxonomy and Geography 70(2): 199-206. [Using mostly previously published DNA sequences, this paper shows that the Iranian *Loranthus grewingkii* is sister to *L. europaeus*.]

Zhang Lin Yue HuiLan, Zhao XiaoHui, Li Jing and Shao Yun. 2015. Separation of four phenylpropanoid glycosides from a Chinese herb by HSCCC. Journal of Chromatographic Science 53(6): 860-865. [Using HSCCC to identify echinacoside, wiedemannioside C, forsythoside B and verbascoside in the Tibetan medicinal herb *Pedicularis longiflora.* var. *tubiformis*.]

Zhang Meng, Ma YongQing, Zhong WenJin, Jia XueTing, Wu DanRui, Yu Rui and Ye XiaoXin. 2015. N-P-K ratio affects exudation of germination stimulants and resistance of tobacco seedlings to broomrapes. Plant Growth Regulation 76(3): 281-288. [Confirming that stimulation of *Orobanche cumana* and *Phelipanche aegyptiaca* by root exudates from tobacco seedlings was decreased under higher N and P nutrition. Further, in a Petri dish study, increased vulnerability to *P. aegyptiaca* infection was observed in one variety of tobacco under nitrogen- and potassium-deficient conditions while it occurred in a second variety under nitrogen- and phosphate-deficient conditions. The results showed that macro-nutrient ratios can affect both the exudation of germination stimulants and the resistance of tobacco seedlings.]

Zhang XinHua, Berkowitz, O., da Silva, J.A.T., Zhang MuHan, Ma GuoHua, Whelan, J. and Duan Jun. 2015. RNA-seq analysis identifies key genes associated with haustorial development in the root hemiparasite *Santalum album*. Frontiers in Plant Science, 6(September): 661. [Results suggest that genes encoding nodulin-like proteins may be important for haustorial morphogenesis in *S. album*.]

Zhang YanXia. 2014. Elucidation of strigolactone biosynthesis in the host plant rice and the signal perception in the parasitic plant *Striga hermonthica*. PhD thesis. Wageningen University, Wageningen, Netherlands, 210 pp. [See Thesis above]

Zhao, Y.Z., Feng, Y.L., Wang, D. and Qu, B. 2015. First report of dodder (*Cuscuta australis*) parasitizing the invasive weed *Ambrosia artemisiifolia* in China. Plant Disease 99(9): 1285-1286. [First report of a localised infestation in Northeast China.]

Zhu NingBo, Chen Lei, Bai Yun, Li XueWu, Cairang DanZhou, Li Tao, Li JiRun and Tian ChengMing. 2015. Anatomical study on endophytic system of dwarf mistletoe (*Arceuthobium sichuanense*). Acta Botanica Boreali-Occidentalia Sinica 35(7): 1342-1348. [A detailed description of the progression of penetration and development following penetration of *A. sichuanense* into a host not named in the abstract but presumably a *Picea* sp.]

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