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MESSAGE FROM THE IPPS PRESIDENT

Dear IPPS Members,

I am pleased to announce the results of the recent IPPS elections. But first, I want to thank everyone who participated in this important process, including anyone who made a nomination, agreed to be nominated, or voted in the election. Judging by the high level of interest and the quality of the nominees, we should feel very good about the health of our society.

Congratulations to Koichi Yoneyama, Hanan Eizenberg, and Julie Scholes for being elected to office. As described in the last issue of Haustorium, we have moved to a system in which we replace only half of the Executive Committee every two years in order to maintain continuity within the leadership. Thus, the full list of IPPS officers is now:

President – Jim Westwood (continuing)
Vice President – Koichi Yoneyama (newly elected)
Secretary – Hanan Eizenberg (newly elected)
Treasurer – Philippe Delavault (continuing)
Editor – Diego Rubiales (continuing)
Member at Large – Julie Scholes (newly elected)

I also want to express deep gratitude to Fred Kanampiu and Grama Dhanapal for their service to the society as Members at Large. Thanks also to Koichi Yoneyama for his work as Secretary, and we look forward to his continued involvement as Vice President.

With this new administration in place, I hope we can continue to build the society membership and activities. As you will notice from the articles and literature in this issue, the quantity and quality of work on parasitic plants is constantly increasing, and research on these organisms has never been more exciting. Please plan now to attend the 10th World Congress on Parasitic Plants, to be held in Kusadasi, Turkey June 8-12, 2009 (See the separate announcement in this issue). This conference is being organized by Diego Rubiales (Chair of the Scientific Steering Committee) and Ahmet Uludağ (Chair of the Local Organizing Committee). It is a beautiful venue in which to enjoy great science.

Sincerely,

Jim Westwood, IPPS President

OROBANCHE CRENATA IN SUDAN: HISTORY, DISTRIBUTION AND MANAGEMENT

Faba bean (*Vicia faba*), has been planted in northern Sudan since time immemorial along the fertile strip of alluvial soils of the Nile valley extending north, on both banks of the Nile, from Khartoum to Wadi Halfa, 2800 km north on the Egyptian border. The crop is an important source of protein for a major sector of the populace, particularly in urban areas. It is also of significant economic importance to farmers. Other major crops in the area include lentil, chickpea, wheat, maize, tomato onion and berseem. The total area under leguminous crops is about 80 thousand hectares, 70% of it planted to faba bean, yielding about 70 thousand metric tons annually, constituting about 70% of the country's needs. Faba bean is a low input crop, unlike wheat, and farmers usually use no fertilizers; and the crop is not susceptible to bird damage. Furthermore, faba bean improves soil fertility and increases productivity of subsequent crops. The importance of faba bean in Sudan is expected to assume new dimensions as socioeconomic changes associated with population pressure, increased urbanization and immigrations to cities, increase demand. Moreover, the projected expansion of irrigated agriculture in northern Sudan, fostered by the recently constructed Hamdab dam, is expected to at least double the area under faba bean. More than 400,000 ha of land are expected to be brought under cultivation.

Production of faba bean is threatened by the root parasitic weed *Orobanche crenata*. The parasite is a recent introduction into Sudan and was first reported in 2000/2001 on an area of about 2 ha at Ed Debiba in

Merowe governorate in northern Sudan. It was speculated that the parasite seeds were introduced, involuntarily, as contaminants of faba bean seeds from Egypt. Besides faba bean the parasite attacks several other legumes including lentil and chickpea. A limited survey undertaken in 2001/2002 over 158 ha in Ed Debiba revealed that 94 % of the area under faba bean was infested. A second survey in 2002/2003 revealed that the parasite had spread into a stretch of about 60 kilometer along the Nile on either side of the original infestation. A third survey conducted in the Northern state in 2003/2004 showed that the parasite had spread along about 160 kilometers including El Selaim basin (the most important and productive area of faba bean in Sudan). Isolated infestation foci were reported in the bordering River Nile state. A national survey, undertaken at harvest, in 2004/2005 indicated that the infested area in the Northern state was about 9% of the total area (33.6 thousand ha) under faba bean. The infestation was highest in Merowe governorate where the parasite was first reported. In the River Nile State the parasite was reported from 28 sites, infesting 1% of the total area (33.734 thousand ha) under the crop. In both States infestation varied from light to heavy. A national survey conducted in 2005/2006 revealed the presence of the parasite in 99 sites in the River Nile State. Of these sites 35 were islands. The infested area had risen to 4.4% of the total area under faba bean. In the Northern State the parasite was reported from 20 sites. The decrease in number of infested sites in the Northern state is due to abandonment of faba bean planting.

The parasite was probably introduced in the 1990s when increased urbanization and market demands led to importation of faba bean from neighbouring countries. The high quality, and high price of some of the introduced varieties enticed farmers to grow them locally. The parasite, unnoticed, multiplied, naturalized and has become a problem. The wide spread of the parasite is consistent with its invasive nature, lack of natural enemies, lack of awareness about the parasite, its biology, reproduction, methods of spread, the nature of its association with its host, its debilitating effects, and a series of malpractices. Hand-pulled *Orobanche* spikes are piled in the fields, thrown into the river or onto adjoining roads. Fields were normally grazed immediately after harvest and crop residues were used as animal feed. Land is limited, and mono-cropping of faba bean is the predominant practice; individual holdings are small, 0.5-4 ha, farm equipment including tractors and threshers are in short supply and are in common use. Moreover, faba bean seeds from infested fields are transported over long distances and used for seeding. Spread of *Orobanche* species, as is the case with many invasive alien weeds, occurs through dispersal and repeated establishment of satellite foci from a founder population. Like other root parasitic weeds no single measure provides effective control and an integrated approach comprising preventive, cultural, biological and chemical methods needs to be adopted. Control of the parasites is further compounded by existence of hosts from among wild plant species. Apart from faba bean, chickpea and lentil the parasite is found growing on *Malva parviflora*, a common weed in northern Sudan, and on an *Euphorbia* species.

To-date *O. crenata* occupies a small proportion of the area under faba bean (4-9%). However, infestation foci are scattered all over the cultivated area. It is worth mentioning that the bulk of the area under faba bean is restricted to the Nile valley north of Khartoum. If the parasite is not contained and controlled faba bean production in Sudan will be at stake.

Education is the most important element in thwarting *Orobanche* spread. Farmers, professional agriculturists and policy makers should understand and recognize the consequences of allowing spread of *O. crenata*. For farmers who do not have an infestation, proactive prevention is their best management strategy. A regional project entitled 'Training on *Orobanche* Management in Leguminous Crops' (TCP/INT/3004) was sponsored by the FAO in the period 2004-2005. The project used Farmer Field Schools (FFS) as the primary means of increasing farmers' awareness on crop production practices and *Orobanche* management. Nine FFS were supported by the programme. Farmers and policy makers, through training in FFS, back-stoppings, field visits, lectures, radio and television messages, leaflets, brochures articles in local news papers and a national workshop held in Khartoum in April 2005, were made cognizant of the parasite, its life-cycle, means by which the parasite spread, role of malpractices in the noticeable rapid spread of the parasites together with available methods of control. The importance of starting with clean crop seeds from known sources or cleaning seeds from unknown sources by sieving, washing with water and repacking in new clean containers prior to planting was emphasized. The role of *Orobanche* seed size, productivity, viability and seed bank in soil in the spread and perpetuation of the parasite together with the importance of crop rotation and detection surveys in *Orobanche* spread, control and decision making were stressed.

In general, movement of farm equipment from *Orobanche* infested areas into uninfested areas is restricted. Fields with light or spotty infestations may be cropped with faba bean but emergent *Orobanche* spikes are hand-pulled before seed shedding. However, in the case of heavy infestations crop rotation is obligatory.

Rotation with crops such as berseem, maize, wheat, onion and sorghum for several years is encouraged. Subsequent faba bean crops are sprayed with imazethapyr (50 g a.i./ha) as a pre-emergence treatment followed by two sprays of glyphosate (60 g a.i./ha) as post- emergence treatments. Three sprays of glyphosate alone (60 g a.i./ha each) as post-emergence treatments commencing at flowering are equally effective. Remaining *Orobanche* spikes are hand-pulled at harvest and fields are ploughed to discourage grazing.

Detection surveys, regulatory measures which focus on prevention of movement of viable seeds are recommended. To this effect the federal ministry of agriculture prohibits import of faba bean without prior consent. Importation is restricted to border trade and the imported seeds are to be examined and their freedom from *Orobanche* seeds has to be ascertained and certified. Local governments passed internal regulations prohibiting movement of faba bean seeds from infested areas into *Orobanche*-free areas. Animal grazing, movement of farm equipment (unless thoroughly cleaned) and use of crop residues from infested fields as animal feed are prohibited. Local governments also monitor and document *O. crenata* spread and distribution annually, locate infested sites, determine intensity of infestations and accordingly advise farmers on how to deal with infestations and on whether to plant faba bean next season or seek an alternate crop.

A.G.T. Babiker, Sudan University of Science and Technology, Khartoum, Sudan.
E-mail: agbabiker@yahoo.com

LITERATURE HIGHLIGHT

Strigolactones - a new class of plant hormones?

A forthcoming issue of the journal Nature contains a remarkable pair of articles on strigolactones. Two research groups have arrived at the conclusion that these compounds play a role in suppressing branching in plants. Using sets of genetic mutants of pea, rice and *Arabidopsis*, they have demonstrated that mutants with a phenotype characterized by prolific branching are deficient in strigolactones, and conversely, that addition of GR24 restores the wild type branching pattern. Other researchers have previously proposed the existence of a new class of hormones that act in coordination with auxin and cytokinin to control axillary bud growth in plants, and it now seems that strigolactones – or their derivatives – correspond to these hormones.

Aside from the impact of this work on understanding plant development, it has implications for parasitic plant research. Among these is the realization that several genes important in not only strigolactone synthesis, but also its downstream signal transduction pathway, are already known and can be used to further understand mechanisms of strigolactone action. For long-time parasitic plant researchers the biggest impact of this news may be in realizing that strigolactone detection is not at all unique to parasitic plants. In fact, it would seem that the strigolactone hormone is an evolutionary ancient signal, dating back to the earliest branching plants. This may explain why so many plants produce strigolactones, regardless of whether they are hosts of parasites. Thus, parasitic plants are not unusual in being able to detect strigolactones, but rather are unique in having modified the signal to meet their needs for host detection.

With the contribution of these papers, three biological functions for strigolactones have now been shown. They suppress branching in plants, induce branching in arbuscular mycorrhizal fungi, and stimulate germination of parasitic plant seeds. There is certain to be an increase in work on these chemicals, and it will be interesting to see what develops next.

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Jim Westwood

THE 5TH INTERNATIONAL WEED SCIENCE CONGRESS, 23-27 JUNE 2008, VANCOUVER CANADA.

A report on the session 'Management of parasitic weeds':

The successful management of parasitic weeds (*Striga* and *Orobanche* species) is a continuing challenge due to the complexities of the host-parasite interaction. Athough many questions remain to be answered the papers presented in this session revealed new insights into host-parasite biology that will impact the design of control strategies in the future.

Kaori Yoneyama (University of Utsunomiya Japan) has been examining the effect of nutrient deficiencies (nitrogen and phosphorus singly and in combination) on the exudation of strigolactone germination stimulants, orobanchol, orobanchol acetate and 5-deoxystrigol from the roots of a range of plant species. Strigolactones not only stimulate germination of parasitic plants but are also responsible for hyphal branching of arbuscular mycorrhizal fungi. Kaori demonstrated that the effects of N and P deficiencies on strigolactone production by roots varied with plant species, for example, in *Trifolium pratense* and *Medicago sativa* P deficiency promoted exudation of orobanchol and orobanchol acetate whereas in sorghum 5-deoxystrigol production was increased by both N and P deficiency. The effects of nutrient deficiencies on the production of strigolactones has implications for management strategies based on improving soil fertility and may also provide an explanation for the observation that plants infected with mycorrhizal fungi appear to produce less strigolactones than uninfected plants.

Identifying host genotypes that provide resistance to *Striga* is a major focus of *Striga* research. Pyrimiding of resistance genes or Quantitative Trait Loci (QTL) for different types of resistance could be a cost effective control strategy. ***Heiko* Parzies (University of Hohenheim, Germany)** and colleagues from Africa have undertaken a large Marker Assisted Backcrossing (MAB) programme to introgress QTL for *Striga* resistance from a resistant sorghum durra line (N13) into adapted, farmer preferred sorghum varieties (FPSVs). Seven FPSVs from Kenya, Eritrea, Sudan and Mali were selfed twice following two backcrosses to produce many lines with up to four *Striga* resistance QTL. These lines are currently being evaluated for *Striga* resistance in field trials in Kenya, Sudan and Mali and initial results are very promising; in many lines *Striga* resistance is as good as that of the donor line N13. Heiko also reported that out crossing rates of some FPSVs varied with seed system and farmer management practices leading to clear recommendations for maintaining the stability of the improved varieties. **Julie Scholes and colleagues (University of Sheffield UK)** have identified sources of resistance in rice cultivars to *Striga*. QTL underlying the strong resistance phenotype in the cultivar Nipponbare to one ecotype (population of seeds) of *S. hermonthica* have been identified and will be of use in MAB programmes. It was clear however that a particular rice cultivar exhibited different degrees of resistance to different species and ecotypes of *Striga* and different rice cultivars exhibited different degrees of resistance to the same ecotype of *Striga*. An Amplified Fragment Length Polymorphism (AFLP) analysis was undertaken to genotype individual parasites (from one ecotype of *S. hermonthica*) growing on a very susceptible, a partially resistant and a highly resistant rice cultivar. The study revealed clear genetic differentiation between the subpopulations of *Striga* attached to the different host cultivars illustrating the importance of understanding the genetics of parasite virulence as well as host resistance (host-parasite specificity) in order to breed cultivars with durable resistance for use in different agro-ecosystems.

Successful and durable control of parasitic plants is likely to result from an integrated or combined control strategy. **Abebe Menkir and colleagues (IITA, Ibadan, Nigeria)** reported a study to combine a herbicide resistance gene with naturally occurring polygenic resistance to control *S. hermonthica* in maize. As well as improving the resistance of maize to *Striga* the combination of these control strategies should minimise the risk of the evolution of herbicide resistance in *S. hermonthica* populations. Inbred lines and experimental hybrids that combined the imazapyr resistance gene with polygenic resistance to *S. hermonthica* were developed and tested in the field. Under *Striga* infestation the best six herbicide resistant hybrids in combination with the herbicide seed treatment yielded approximately 8 -10 times more grain per ha than the susceptible check cultivar. Even without the seed treatment the hybrids yielded 6 to 9 times more grain per ha than the susceptible check leading to the suggestion that the hybrids could be planted without seed treatment in infested fields in alternate years to delay the emergence of herbicide resistant *S. hermonthica* populations whilst still maintaining a good yield.

The development of a system to deliver *Striga* mycoherbicides (*Fusarium oxysporum* f.sp. *strigae*) and selected fungicides as a seed treatment to control both *S. hermonthica* and fungal diseases on maize was discussed by **Abuelgasim Elzein (University of Hohenheim, Germany).** Promising progress has been made in the development of the seed treatment technology. Some fungicides were compatible with the biocontrol agent and in field trials in West Africa significant reductions in *Striga* emergence were observed. A second study of the efficacy of *Fusarium oxysporum* f.sp. *orthoceras* for the control of *Orobanche cumana* was presented **by Dorette Muller-Stover (University of Copenhagen).** In pot experiments in a greenhouse, emergence of *Orobanche* was reduced by 80% in the presence of the biocontrol agent but in field trials in Israel and Bulgaria across two seasons results were more variable illustrating that the efficiency of the biocontrol agent was influenced by environmental conditions. Further work is underway to

identify the key biotic and abiotic factors affecting the success of the biocontrol strategy.

Herbicides are frequently used to control *Orobanche aegyptiaca* on tomatoes in Israel and the success of this control strategy is correlated with infestation level, and the rate and timing of application of the herbicide. In order to optimise the application of herbicides and to improve the efficacy of control in a field situation ***Hanan* Eizenberg (ARO Ramat Yishay, Israel)** described the development of a Decision Support System (DSS) named 'Pick-It' for use by farmers for the rational control of the parasite. Initial results look extremely promising and the system is currently being evaluated in commercial tomato fields.

There has been much interest in the possibility of engineering resistance to parasitic plants particularly by silencing parasite specific genes although success has been limited to date. **Radi Aly (ARO, Newe-Yaar Research Centre, Israel)** reported considerable progress in the silencing of a gene encoding mannose 6–phosphate reductase (M6PR) in *Orobanche aegyptiaca*. This enzyme is involved in the regulation of mannitol production in the parasite, a process essential for successful uptake of water and nutrients from the host. Tomato was transformed with a construct designed to silence the parasite M6PR gene. Following infection of the tomato plants with *Orobanche* RT-PCR revealed much lower levels of mRNA of M6PR in *Orobanche* tubercles (indicating some gene silencing) and a greater number of dead tubercles. These results are promising and the silencing of further parasite specific genes is being investigated.

Finally, **Kazuteru Takagi (Osaka University, Japan)** reported a study of the phytochrome A (phyA) phototoreceptor in *Orobanche minor*. As *Orobanche* is non photosynthetic it was hypothesised that the signalling pathway related to photosynthetic control may be altered in this parasite in relation to a chlorophyll containing plant but that functions relating to morphogenesis would be retained. A comparison of the amino acid sequence of phyA from *Orobanche* and *Arabidopsis* revealed a large number of unique amino acid substitutions. The photoresponses of *Orobanche* and *Arabidopsis* were also shown to differ markedly suggesting a different function for the phyA photoreceptor in the two plants. Further analyses are currently underway using transcriptomics and metabolomics to further our understanding of the function of phyA in *Orobanche*.
Julie Scholes, University of Sheffield.

NOTE: Several other sessions at the Congress included papers on parasitic plants. See below under MEETINGS for a full listing of all relevant papers and posters.

MISTLETOE IN TUMOUR THERAPY: BASIC RESEARCH AND CLINICAL PRACTICE. 4TH MISTLETOE SYMPOSIUM

Treatment with mistletoe preparations is one of the most important methods of complementary oncology. This is why the 4th international and interdisciplinary mistletoe symposium was held at the Europäisches Bildungszentrum Nonnweiler-Otzenhausen from 8th to 10th November 2007. More than 110 scientists and doctors from different therapy approaches and scientific disciplines, manufacturers of mistletoe preparations and representatives of authorities came together in the Europäisches Bildungszentrum Nonnweiler-Otzenhausen (Saarland) to present and discuss the current status of 'Mistletoe in Tumour Therapy', from basic research through to clinical practice, in 51 contributions. The symposium was organised and sponsored by the Karl und Veronica Carstens Stiftung and the Gesellschaft Anthroposophischer Ärzte in Deutschland (GAÄD – German Society of Anthroposophical Doctors) together with the Gesellschaft für Arzneipflanzenforschung (GA – Society for Medicinal Plant Research), Gesellschaft für Phytotherapie (GPhyt – Society for Phytotherapy), Deutsche Pharmazeutische Gesellschaft (DPhG – German Pharmaceutical Society) and Zentralverband der Ärzte für Naturheilverfahren und Regulationsmedizin (ZAEN – Central Association of Doctors in Naturopathic and Regulation Medicine). The Arbeitsgemeinschaft für Pharmazeutische Verfahrenstechnik (APV – International Association for Pharmaceutical Technology) was a co-operation partner. As in the previous three symposia, the organisational director was Dr. Rainer Scheer from Carl Gustav Carus-Institut in Niefern-Öschelbronn. The members of the scientific organisation committee were: Prof. Dr. Susanne Alban (Kiel), Prof. Dr. Hans Becker (St. Ingbert), Prof. Dr. Ulrike Holzgrabe (Würzburg), Prof. em. Dr. Dr. h.c. mult. Fritz H. Kemper (Münster), Prof. Dr. Wolfgang Kreis (Erlangen), Dr. Harald Matthes (Berlin) and Prof. Dr. Dr. h.c. mult. Heinz Schilcher (Immenstadt).

Interdisciplinary symposium
The diversity of standpoints of the organising associations and speakers lent this symposium its particular character. It took place in a constructive atmosphere, which is typical of this series of symposia held every four years. The aim of these meetings is to create a forum for discussion, enabling participants to

review current studies and the latest findings. It is hoped that doctors (whether in general or hospital practice), pharmacists and health insurance companies will get an idea of the use and current state of scientific knowledge about mistletoe extracts in basic research and therapy, but also identify their potential and their limitations. The symposia are also intended to bring about factually based dialogue and stimulate further research.

Mistletoe preparations: good new studies

The contributions dealt with current and important topics from the fields of biology, pharmacy and pharmacology. In detail, these involved the effects of different ingredients, immunological and clinical results as well as reports from clinical practice through to clinical trials aimed at identifying specific effects or demonstrating the efficacy of mistletoe preparations. As in the previous symposia, advances in the scientific as well as the medical sphere could be identified. The participation of a number of young researchers should again be highlighted. Naturally the eight summary papers, 33 short papers and 10 posters focused on clinical subjects. Prof. Dr. Stefan F. Martin (Skin Clinic, Freiburg University Hospital) talked about the dual role of inflammation in cancer: on the one hand the rather tumour-promoting effect of chronic inflammation and, on the other hand, the acute inflammation that can be exploited for therapeutic purposes, in relation to which the role of mistletoe preparations was discussed. The importance of mistletoe in oncology today was highlighted by two clinicians from the perspectives of anthroposophical medicine (Dr. Boris Müller-Hübenthal, Filderklinik, Filderstadt) and herbal medicine (Dr. Peter Holzhauer, Veramed-Klinik am Wendelstein, Brannenburg). Other topics were studies on the efficacy and safe use of mistletoe preparations, alone or as an adjunct to standard oncology treatments (surgery, chemotherapy) with the aim of producing a beneficial effect on the immunosuppression caused by the standard therapies. Various instruments of clinical research were used, such as controlled (randomised and non-randomised) studies and cohort studies, but also observational studies which reflect everyday clinical practice more closely, as well as case histories and reports of clinical experience, mainly concerning breast cancer patients but other tumour entities as well. The patients' quality of life, which was reduced by side effects associated with therapy and the disease, was improved in many cases.

The influence of mistletoe extracts on leukaemia and lymphomas was another focal point. Again there were clinical and preclinical reports that there are no identifiable risks of using mistletoe extracts in this context. Another presentation dealt with mistletoe therapy in paediatric oncology. In addition to the whole range of clinical trials, there were questions about dosage, pharmacokinetic studies, through to the development and validation of new mistletoe-specific instruments for clinical testing, such as Cancer Fatigue or Internal Coherence questionnaires, and the development of a database embracing both hospital and general practice, which is an instrument of health services research. Several speakers dealt with methodological questions. For instance, Dr. Matthias Rostock (Tumour Biology Clinic, Freiburg) presented results of the Cochrane Review, the latest meta-analysis in which 21 randomised clinical trials were comparatively reviewed. Dr. Gunver S. Kienle (Institute of Applied Cognitive Science and Medical Methodology, Bad Krotzingen) gave an overview of other systematic study reviews and their analysis, stressing that the critical evaluation of a therapy mainly depends on the quality of the method, meaningfulness in medical and medicinal terms and relevance to practice. It became clear from the discussion that comparisons should also take account of the diversity of the mistletoe preparations tested. It is difficult to conduct randomised clinical trials with mistletoe preparations because people often cannot be randomised, i.e. they are understandably reluctant to leave their therapy to chance, and because patients in the non-mistletoe group frequently still take mistletoe, which means the real difference from the mistletoe group is diminished. In addition, the dosage regimen in mistletoe therapy is usually determined on an individual basis, which is why this essential approach in clinical practice cannot always be tested in a rigid trial regimen. In his summary paper, Dr. Harald Matthes (Havelhöhe Community Hospital, Berlin) therefore contrasted health service research with randomised clinical trials and commented on the use of this instrument in complementary oncology.

It was particularly pleasing that the BfArM (Federal Institute for Drugs and Medical Devices) was represented at this symposium for the first time, in a presentation by Dr. Christiane Kirchner on the 'Regulatory classification of mistletoe preparations'. The non-clinical part of the symposium was divided between pharmacy/biology and preclinical aspects. In the pharmaceutical section Prof. Dr. Wolfgang Kreis (Pharmaceutical Institute of Erlangen University) reported on advances in the structural analysis of ingredients of mistletoe. Other scientific reports covered particular characteristics of different mistletoe ingredients, their interactions with each other and galenical subjects such as liposomes and the further pharmaceutical development of mistletoe preparations. Biology was represented by chronobiological and specific questions about the host trees of mistletoe. In the preclinical sphere Prof. Dr. Reinhild Klein (Medical Clinic, Tübingen University Hospital) gave an overview

of 'Effects of mistletoe extracts on immuno-competent cells in vitro and in vivo', while subjects covered in short papers and posters included apoptosis, cytotoxicity and again the exclusion of tumour stimulation by mistletoe extracts.

Abstracts freely available on the internet
The abstracts were published in English in the journal Phytomedicine (Elsevier-Verlag) . The abstracts are freely available on the internet and can be downloaded as pdf files via www.ScienceDirect.com (go to Phytomedicine, Volume 14, Supplement 2) so that anybody with an interest in the subject can quickly find out all about the Mistletoe Symposium. In addition, the full text of all the contributions is expected to be published in a book by the end of 2008, which will appear in KVC Verlag Essen. Further information about the symposium can be found at www.mistelsymposium.de.

Next Mistletoe Symposium in 2011
In view of the success of this meeting, the participants and organisers agreed that the next Mistletoe Symposium should be held in November 2011, again in Nonnweiler.

Dr. Rainer Scheer, Carl Gustav Carus-Institut, Niefern-Öschelbronn

PRESS RELEASES

'The witch is dead'

(Extract from IITA press release 5 May 2008)

IITA (International Institute for Tropical Agriculture) and its partners have found a way to control the scourge of witchweed (*Striga hermonthica*) in Sub-Saharan Africa through a biocontrol agent. *Striga* infests some 50 million hectares of cereal crops, ~ specifically maize, sorghum and millet, causing farmers an estimated US$ 7 billion in annual losses and affecting over 300 million people in the region. Developed by a team led by IITA plant pathologist Dr. Fen Beed with partners from the University of McGill (Canada) and University of Hohenheim (Germany), the technology utilizes certain strains of *Fusarium oxysporum* (*F. oxysporum*) to fight the parasitic weed. The technology is cheap, environment-friendly and safe as the fungus specifically targets witchweed. The fungal strains tested originated from Ghana, Mali and Nigeria but, like witchweed, they are common throughout semi-arid Africa. The fungus can be easily grown in sterile water containing sorghum waste. The hard part was finding a way to coat seeds with it. Through experimentation, the team found that spores of the fungus can be mixed with liquefied gum Arabic - an organic adhesive extracted from trees and commonly found in many SSA countries -without harming the fungus. The mixture is coated onto the seeds, dried then planted. The fungus remains viable for long periods, making the seeds amenable to storage. The fungus could also be directly dispersed into soil holes where the seeds are to be planted. The treated seeds produce crops that are free of the parasitic weed.

'We cannot say that the witch is dead or soon will be,' Beed says, 'but we definitely have found an extremely effective component of an Integrated Pest Management strategy to kill her- and one that is safe, practical, affordable and sustainable for farmers,' However, he cautions that the technology is not a one-off and stand-alone solution to the witchweed problem. He says that the technology 'has a greater chance of success if combined with other approaches such as the use of resistant varieties, pre-emergence herbicides and adding organic matter to the soil, thereby improving its richness and providing an environment that is conducive to beneficial microorganisms such as the biocontrol fungus,' 'Now that we have a cost-effective method to control witchweed, the next step is to scale out its use and to get it into the hands of farmers at the soonest possible time', he ends.

(We hope to have further news of this development in the next issue – Ed.)

'Fighting the parasitic weed *Striga*'

Scientists from Kansas State University have developed a method that could contribute to the international effort to eradicate *Striga*, a parasitic weed, from African fields. The weed costs $6 billion in crop damage every year in Africa. Underground, *Striga* parts connect to sorghum roots and feed on them, reducing yield dramatically and sometimes even destroying entire fields.

The method involves treating sorghum seeds with an inexpensive, low-toxic herbicide. "As the sorghum grows, the seed treatment will kill the *Striga*. All of these new technologies are being developed in Manhattan, and we are testing the seeds in Africa to select the right herbicide, rate, landrace, seed treatment, and other factors," explained Kassim Al-Khatib, one of the scientists involved in the study. Treated seeds are currently being tested in Mali and Niger with successful results.

The news article is available at http://www.oznet.ksu.edu/news/topstory.asp (from CropBiotech Update March 19, 2008)

‘Crop breeders on verge of beating Africa's most noxious weed using cutting edge science technique’

Nairobi, Kenya - Agricultural researchers have successfully identified and transferred genes that confer resistance to Africa's most deadly weed (*Striga*) using the novel marker assisted selection technique successfully for the first time in the history of crop breeding in Africa.

Researchers have managed to confer resistance to *Striga* in sorghum, overcoming a barrier that has for decades held back scientists'efforts to protect key food crops - sorghum, millet, maize and rice, from this destructive weed. These crops are primary food sources for 300 million people across sub-Saharan Africa.

Striga (*Striga* hermonthica), also known as witchweed, destroys between 40 to 100 percent of a complete season's crop, its annual crop damage across Africa estimated at seven billion dollars (US$7 billion). Currently, the weed threatens to wipe out cereal crops in most of Western Kenya and Eastern Uganda, national agricultural research institutes in the two countries have warned.

"Scientists have searched for the solution to *Striga* damage using a variety of methods, but without much success," says Dr Dionysious Kiambi, a molecular geneticist with the International Crops Research Institute for Semi-Arid Tropics (ICRISAT). "Through marker assisted selection, we have determined the precise segments of the sorghum genome known to confer *Striga*-resistance and have transferred them to farmer-preferred varieties through conventional breeding with very promising results".

Marker assisted selection is a new technique which entails use of genetic landmarks (markers) to tag and transfer specific genes or group of genes that control characteristics of interest such as improved crop productivity, resistance to diseases or pests, or tolerance to stresses like floods and drought. This is the first time the technology has been used successfully for crop improvement in Africa.

ICRISAT scientists has been working with national and international collaborators for several years experimenting with marker assisted selection in search for *Striga* resistance genes from other sorghum varieties conserved in gene-banks across the world. They found one sorghum variety (N13), that is neither high-yielding nor drought-tolerant, to possess the highly sought after *Striga*-resistance genes.

Segments of the N13 sorghum DNA containing genes for *Striga*-resistance were tagged with markers and crossed with farmer varieties using conventional breeding. The use of markers enabled scientists to precisely transfer only the *Striga*- resistance genes to farmer-preferred sorghum varieties without jeopardising farmer-desired characteristics such as drought-tolerance and higher yields.

"We had to make sure that other genetic information from N13 was not transferred to farmer varieties alongside the qualitative trait loci with *Striga*-resistance. We were not replacing any genetic components of farmer varieties, we are just adding to it," says Dr Kiambi. "The resulting variety is almost identical to the original farmer variety plus the component that confers *Striga* resistance."

ICRISAT has been collaborating with scientists from the University of Hohenheim in Germany and national agricultural research institutes of Eritrea, Kenya, Mali and Sudan. The team has to date created five *Striga*-resistant sorghum varieties whose initial trials on-station have been able to ward off *Striga* attacks, some as effectively as the donor parent, sorghum N13. In Kenya, Mali and Sudan, scientists are currently testing the new witchweed-resistant varieties in farmer fields.

Researchers in Africa have for decades experimented with a number of "potentially successful" techniques for managing this deathly weed including breeding for *Striga* tolerance in various crops, promotion of rotational cropping of cereals with legumes such as groundnuts, cowpeas and soybean in order to break the weed's breeding circle, as well as the use of biological and herbicidal control methods.

Africa's resource-poor farmers manage *Striga* primarily by weeding, a pointless, back-breaking activity which comes too late. By the time the crop sprouts, the weed, whose seeds reside in the soil, has long-since attached to plant roots and begun sapping off plant nutrients in earnest. *Striga* is a prolific seed producer, whose seeds lie dormant in the soil for up to two decades.

Crop breeders are enthusiastic about marker assisted breeding because it significantly reduces the duration required to produce improved crop. While conventional breeding is a hit-or-miss technique that requires scientists to wait for the crops to grow to maturity in order to observe expression of desired traits like *Striga*-resistance, marker assisted breeding enables scientists to check for the transfer of the trait as early as when the plant is only two weeks old, and focus on plants with the desired trait. This has more than halved the amount

of time crop breeders need to develop improved varieties.

If the on-station results are successfully replicated on-farm, Africa's biggest cereal crop menace - *Striga* - may well be reigned in, boosting agricultural production, food security and farmer incomes across the continent.

'Plant parasite 'wiretaps' host'

The following is adapted from a press release dated July 30, 2008:

New research shows that chemical signals from the host, called RNA, plant pass deep into the parasite, dodder (*Cuscuta* spp.). A parasitic plant that sucks water and nutrients from its plant host also taps into its communications traffic, a new report finds. The research could lead to new ways to combat parasites that attack crop plants. Professor Neelima Sinha and colleagues at the UC Davis Section of Plant Biology studied dodder vines growing on tomato plants in the lab. They found that RNA molecules from the host could be found in the dodder up to a foot (30 cm) from the point where the parasite had plumbed itself into the host.

Plants often use small RNA molecules as messengers between different parts of the plant. In a paper published in Science in 2001, Sinha's group showed that RNA could travel from a graft into the rest of the plant and affect leaf shape. Plants can also use specific RNAs to fight off viruses. Picking up these RNA messengers could help the parasite synchronize its lifecycle with that of the host plant, Sinha said. "It might be important for the parasite to know when the host is flowering, so it can flower at the same time," before the host dies, she said.

Sinha's lab holds a grant from the Rockefeller Foundation to research plant parasites, notably *Striga*, which attacks maize crops in Africa. *Striga* cannot be imported into the U.S., so dodder serves as a model system. Ultimately, the researchers hope to use host RNA to trigger a change in the parasite that kills it or makes it less damaging, Sinha said. Finding that host RNA molecules are transported through the parasite is a step in characterizing the system, she said.

A paper describing the work is published online by the journal New Phytology. Co-authors on the paper are UC Davis postdoctoral researcher Rakefet David-Schwartz, graduate students Steven Runo and Brad Townsley, and Jesse Machuka of Kenyatta University, Kenya.

Additional information:
Neelima Sinha, Plant Biology, nrsinha@ucdavis.edu
Andy Fell, UC Davis News Service, ahfell@ucdavis.edu

REVIEWS

Parasitic Flowering Plants. Henning S. Heide-Jørgensen. 2008. Brill: Leiden. 438 pages. Illustrated. Hardback ISBN: 978 90 04 16750 6. List price: €99.00 /US$ 148.00. Members of IPPS (and other readers of Haustorium) can quote action code 47762 to obtain a discounted price of €79.20 / US$118.40 (More information available at www.brill.nl or contact brill@turpin-distribution.com)

This profusely illustrated book is a worthy successor to Job Kuijt's seminal Parasitic Flowering Plants, published in 1969 and widely acknowledged as the beginning of modern research on parasitic vascular plants. So it is fitting that this volume should be dedicated, in part, to Job Kuijt and to share the same title as his book.

Like its worthy predecessor, Heide-Jorgensen's volume covers most areas of these plants' biology. Reflecting the author's earlier work on anatomy, the structure of the haustorium is well described both with excellent micrographs as well as helpful interpretive diagrams. The section on *Parasitaxus usta*, based on the careful work of Feild, will help to finally clarify the nutritional relationships of this mycotroph which lives in close association with its fungal component and another gymnosperm, *Falcatifolium taxoides*.

The bulk of the book is a survey of the families and a majority of the genera of parasitic plants. Each genus treatment covers the taxonomy, distribution, floral biology, animal interactions, and a large amount of other data. The taxonomic hierarchy is based on the phylogeny of the Angiosperm Phylogeny Group at the time of writing. Thus, Rafflesiaceae, for example, no longer includes *Pilostyles* and other groups. The parasitic Scrophulariaceae are placed in the Orobanchaceae (though at least once referred to as parasitic scrophs). Reflecting recent research, there is a section on the role of parasitic plants in their respective ecosystems as well as a chapter on crop parasites. All of these treatments have copious full color illustrations taken by parasitic plant researchers throughout the world.

Going through this book is like seeing one a favorite black and white movies in color as so much of the work reviewed here was first published in black and white.

Among these are the careful investigations of the parasitism of *Exocarpos* by Fineran, numerous studies by Kuijt, and many others. So much information has been garnered and presented in color for the first time.

The quality of the color reproductions deserves note. I have seen many of the plants in the field and therefore am pleased at the accuracy of the color reproduction. Kudos to the publisher for such wonderful color!

While attempts are made for the book to be accessible to the non-specialist, in reality this is a book for botanists. Including a box to explain the plant cuticle and a box for photosynthesis do little for the non-biologist. Asterisks by such words as endemic that lead the reader to the glossary are a distraction. While the text is unappetizing, the book is such a sumptuous presentation of the wonderful form and color and charm of these plants that a non botanist can feast on it.

On the other hand, the professional botanist who might consider this as a source for literature references will be sorely disappointed. For reasons not clear, the literature cited section is truncated and uneven. There are numerous references, for example, to Heide-Jorgensen's work and that of Fineran but not a single citation for De Pamphilis or Nickrent who have both contributed so much to our understanding of evolution and phylogeny of parasitic plants. Many other examples could be noted.

It is unfortunate that such a volume was not more carefully edited. There are numerous spelling errors (Californica for California, *Ogyris* for *Osyris*, New Yersey for New Jersey, and so many more.

This is an expensive book at 99 Euros but not excessive considering the hundreds of full color pictures.

To many of us, Kuijt's classic cannot be improved on even though it is almost forty years old and black and white. The heuristic value of that work has proven remarkable over the decades. I wish the same for Heide-Jorgensen's book which will be required reading for every parasitic plant worker.

Lytton John Musselman, Old Dominion University.

Mistletoes Pathology, Systematics, Ecology, and Management. R. L. Mathiasen, Daniel L. Nickrent, David C. Shaw, and David M. Watson. 2008. Plant Disease 92(7): 988-1006.

My first response to this review was amazement at how different the content was compared to mistletoe literature I reviewed ten and twenty years ago. At that time, to use the words of the present authors, mistletoe was much more of a fiend then a friend. Mistletoe taxonomy was also a lot less complicated and, as is obvious from this review, poorly understood. In short, this is a valuable, readable account of mistletoes.

The overall biology of mistletoes is treated and the reader is given a clear understanding of the parasitic life style followed by the pathogenic effects of these parasites, an area of research especially well studied in the Pacific Northwest region of the United States.

A survey of mistletoe taxonomy and phylogenetics occupies almost one quarter of the body of the text—a section that some readers will find wearying but information that is nonetheless essential to understand the groups, especially since so much has been learned only in the past few years and has yet to find its way into the literature.

Another aspect of mistletoes that is receiving considerable study, well reviewed in this paper, is their role in ecosystems. For example, it has been shown that some mistletoes sequester elements in their leaves that help nourish the host tree when those fall. On the other hand, trees that are heavily infested with mistletoes can have decreased populations of mychorrhizal fungi. The relationship with fire, an essential factor in many of the plant communities where mistletoes occur, is explained.

In contrast to many earlier papers, control of mistletoes is covered rather briefly but there is consideration of management for control by removing mistletoes (manual removal is still the best way) and management for wildlife habitats and as endangered species. And a few mistletoes are managed for commerce including those harvested for wood roses and Christmas decorations.

This helpful well-illustrated review will be the main reference for anyone interested in mistletoes. With more than 200 references, it is a valuable resource for plant pathologists, parasitic plant specialists, ecologists, and anyone drawn to these fascinating plants.

Lytton John Musselman, Old Dominion University

MEETINGS

5th International Weed Science Congress, Vancouver, Canada, 22-27 June, 2008. Posters and papers on parasitic plants presented at this meeting were as follows. Proceedings (abstracts) from the meeting will be available on a web-site yet to be announced. Meanwhile a CD can be purchased via the IWSS web-site (http://iws.ucdavis.edu/) – click HERE to update membership – click BUY – change number of years membership to 0 – enter $15 payment if a member, $25 if not.

Posters:

Mitra Ghotbi *et al.* - Comparison of nutritional effects on sporulation, desiccation tolerance and virulence of two isolates of *Fusarium oxysporum* in order to introduce an effective biocontrol agent of *Orobanche aegyptiaca.*

Mitra Ghotbi *et al.* - Comparison of two liquid media in increasing virulence and desiccation tolerance of two isolates of *Fusarium oxysporum* for biocontrol of broomrape (*Orobanche* spp).

Khalid Hameed *et al.* - Biological control of broomrape (*Orobanche cernua*) seed germination utilizing an indigenous actinomycete isolate in Jordan.

Abuelgasim Elzein *et al.* - Does vacuum-packaging atmosphere enhance shelf-life of *Striga*-mycoherbicidal products containing *Fusarium oxysporum* f.sp. *strigae* during storage.

Mustapha Haidar and Chadi Gharib - Companion barley for *Orobanche crenata* control in organic broad bean.

Eva Kohlschmid *et al.* - *Fusarium oxysporum* - an antagonist of the holo-parasitic weed *Orobanche ramosa*.

Gualbert Gbe`hounou *et al.* - Discovery of *Merremia tridentata* subsp. *angustifolia* as a wild host of *Striga gesnerioides* in the Republic of Benin: a benefit of Farmer Field School.

Hilary Sandler - Importance of germination patterns and herbicide aApplication for the control of swamp dodder, *Cuscuta gronovii*, in Massachusetts cranberry production.

Benesh Joseph *et al.* - GR24 induces germination through distinct metabolic changes in *Orobanche minor* seeds.

Yaakov Goldwasse *et al.* - Disinfection of broomrape seeds on agricultural equipment with didecyl dimethyl ammonium bromide.

Zoheir Ashrafi *et al.* - Effect of soil solarization, a nonchemical method, on the control of Egyptian broomrape (*Orobanche aegyptiaca*) and yield improvement in greenhouse grown cucumber.

Jamal Qasem - Parasitic weeds of the Orobanchaceae family and their natural hosts in Jordan.

Korne *et al.* - Host and habitat specificity of the *Cuscuta* species in Hungary.

Jamal Qasem - Mistletoes (*Viscum cruciatum* Siebr. ex Boiss. and *Loranthus acaciae* Zucc) and their hosts in Jordan.

Sirous Hasannejad *et al.* - *Erwinia carotovora* as a stimulant agent for *Orobanche aegyptiaca*.

Sirous Hasannejad *et al.* - Evaluation of *Erwinia carotovora* and three isolates of *Fusarium oxysporum* as biological control agents of Egyptian broomrape (*Orobanche aegyptiaca*).

Oumar Ouedraogo - Biological control of *Striga hermonthica* by the use of *Polygala rarifolia* on maize in Burkina Faso.

Girija Vijayaraghavan and Chirathadam Abraham - Phanerogamic parasite on fruit crops of Kerala.

Tom Lanini - Dodder (*Cuscuta pentagona*) control in processing tomato (*Lycopersicon esculentum*).

Sirous Hasannejad and Saber Mirzaii - Effects of some medicinal plant extracts on *Orobanche cernua* seed germination.

Ahmet Uludag and Yildiz Nemli - Parasitic flowering plants in Turkish flora.

Friday Ekeleme *et al.* - The Influence of sowing date and *Striga hemonthica* on the yield of different varieties of sorghum (*Sorghun bicolor*).

Somayeh Foruzesh *et al.* - Evaluating the possibility of chemical control of broomrape.

Nadjia Zermane - New options for biocontrol of parasitic weeds of the genera *Orobanche* and *Cuscuta*.

Majid Amini Dehghi *et al.* - Host-range and factors enhancing the virulence and desiccation tolerance of *Fusarium oxysporum* as promising biocontrol agent of *Orobanche aegyptiaca*.

Barakat Abu Irmaileh - *Trichoderma* is a promising bio-agent for controlling *Orobanche* in tomato.

Mou-Yen Chiang *et al.* - Host-specific *Colletotrichum* for control of field dodder (*Cuscuta campestris*).

Paul But *et al.* - A tale of three dodders for the biocontrol of *Mikania micrantha* in Hong Kong.

Paul But *et al.* - Application of fresh vegetative cuttings of dodders for the biocontrol of *Mikania micrantha*.

Oral presentations:

Rosemary Ahom *et al.* - Management of *Striga hermonthica* (Del) Benth in *Zea mays* with *Sesamum indicum* and *Glycine max* as intercrops and nitrogen fertilization in Benue State, Nigeria., University.

Julie Scholes - Can resistant cereals solve the *Striga* weed problem in Africa.

Kazuteru Takagi *et al.* - Photoresponse analysis of phytochrome A in a non-photosynthetic parasitic plant, *Orobanche minor* Sm.

Radi Aly *et al.* - Gene silencing of mannose 6-phosphate reductase in the parasitic weed *Orobanche aegyptiaca*.
Kaori Yoneyama *et al.* - How mineral nutrients affect the exudation of strigolactones, germination stimulants for root parasitic weeds.
Hanan Eizenberg *et al.* - Developing a decision support system (DSS) for *Orobanche aegyptiaca* control in tomato.
Heiko Parzies *et al.* - Introgression of quantitative trait loci (QTL) for *Striga* resistance into adapted sorghum landraces through marker assisted backcrossing in sub-Saharan Africa.
Abebe Menkir *et al.* - Combining an herbicide resistance gene with natural polygenic resistance to control *Striga hermonthica* (Del.) Benth in maize.
Abuelgasim Elzein *et al.* - Co-delivering of *Striga*-mycoherbicides with fungicides using seed treatment technology: compatibility, field efficacy and implication.
Dorette Müller-Stőver *et al.* - Field applications of *F. oxysporum* f.sp. *orthoceras* for the control of *Orobanche cumana* Wallr.
Dionyssia Lyra *et al.* - Exploratory spatial analysis of noxious *Orobanche* species data in Greece.
Kassim Al-Khatib *et al.* - Managing *Striga* infestation with metsulfuron and imazapyr seed treatments in grain sorghum resistant to acetolactate synthase-inhibiting herbicides.
Aijan Jusupova *et al.* - Control of the field dodder on sowings of sugar beet and alfalfa.
Koichi Yoneyama *et al.* - Characterization of strigolactones, plant derived signals for symbiosis and parasitism.
Chad Brommer *et al.* - Strategies and innovations in the control of *Striga asiatica.*

FORTHCOMING MEETINGS

The 2nd Symposium on 'Biology of Non-weedy Hemiparasitic Orobanchaceae', held in Ceske Budejovice, Czech Republic, August 27-30 2008.. More information on the conference (including a detailed program and a book of abstracts) is available on its web site: http://botanika.prf.jcu.cz/hemiparasites
The organizers are: Jakub Tesitel, Milan Stech and Jan Leps, Dept. of Botany, Faculty of Science, University of South Bohemia. (A report on this meeting will be included in the next issue)

The Conference 'Managing Parasitic weeds: integrating science and practice' will be held in Ostuni – Italy, 21-26 September 2008. Jointly organised by OECD and EWRS. Full details were provided in Haustorium Extra2 mailed 13 May, 2008.

Co-Directors:
Maurizio Vurro, Bari, Italy - maurizio.vurro@ispa.cnr.it
Jonathan Gressel, Rehovot, Israel - jonathan.gressel@weizmann.ac.il

The 10th World Congress on Parasitic Plants will be held in Kusadasi, Turkey, June 8-12, 2009. Contribution and participation from researchers, industry and all relevant people on any weedy or non-weedy parasitic plants is encouraged. The programme will consist of oral presentations and posters. Oral presentations will be invited or selected from submitted preliminary abstracts. Contact for scientific queries: Ahmet Uludag (secretary@ippsippsturkey.com). For registration and accommodation queries: Deniz Yanar Servi (info@ippsturkey.com). Or refer to the conference website: www.ippsturkey.com .

Canopy Conference, Bangalore, October 2009 – mistletoe session

Dear colleagues interested in mistletoes,

The organizers of this conference are looking into the possibility of organizing a symposium on the topic of canopy biota that exist in human-affected habitats, particularly in pasture trees, plantations, secondary forests, and urban habitats. The symposium could also address canopy animals and micro-organisms. Such topics as forest fragmentation, genetic isolation, and restoration ecology could be addressed. This topic could be of considerable interest to many persons engaged in mistletoe work and would fit very well with the objectives of the IUFRO working group on mistletoes. India would be an interesting place to visit, because it has a high diversity in mistletoes and quite a few colleagues there are interested in mistletoes.

If anyone is interested to contribute to a mistletoe session at the Canopy Conference 2009, could they please send the following information to Prof. Glatzel before October 4, 2008:

Ref.: mistletoe session, Bangalore
Name, E-mail address, WEB-link
Topic/title of a possible contribution
Could you help in organizing?

Professor Gerhard Glatzel
Institute of Forest Ecology, UNI BOKU Vienna
Peter Jordan-Strasse 82, A-1190 Vienna, Austria
email: gerhard.glatzel@boku.ac.at'

GENERAL WEB SITES

For individual web-site papers and reports see LITERATURE

For information on the 10th World Congress on Parasitic Plants in Turkey, 2009, see: http://www.ippsturkey.com/

For abstracts from the 9th World Congress on Parasitic Plants see: http://www.cpe.vt.edu/wcopp/index.html

For information on the International Parasitic Plant Society, past and current issues of Haustorium, etc. see: http://www.ppws.vt.edu/IPPS/

For past and current issues of Haustorium see also: http://www.odu.edu/~lmusselm/haustorium/index.shtml This site is being modified and moved to a new server.)

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

For Lytton Musselman's *Hydnora* site see: http://www.odu.edu/webroot/instr/sci/plant.nsf/pages/lecturesandarticles

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

For The Mistletoe Center (including a comprehensive Annotated Bibliography on mistletoes) see: http://www.rmrs.nau.edu/mistletoe/

For information on the 2nd symposium 'Biology of Non-weedy Hemiparasitic Orobanchaceae' see:http://botanika.prf.jcu.cz/hemiparasites

For information on the 10th World Congress on Parasitic Plants in Kusadasi, Turkey, June 8-12, 2009, see: www.ippsturkey.com

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

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

For the Parasitic Plants Database including '4000 entries giving an exhaustive nomenclatural synopsis of all parasitic plants' (last updated 2003), the address is: http://www.omnisterra.com/bot/pp_home.cgi

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

For information on EC-funded project 'Improved *Striga* control in maize and sorghum (ISCIMAS) see: http://www.plant.dlo.nl/projects/*Striga*/

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

For past and future issues of the Sandalwood Research Newsletter, see: www.jcu.edu.au/school/tropbiol/srn/

For information on the work of the African Agricultural Technology Foundation (AATF) on *Striga* control in Kenya, see: http://africancrops.net/striga/

To view the list of presentations and participants at the *Striga* meeting in Addis Abeba, November 2006, see: http://www.agry.purdue.edu/strigaconference/index.html

For information on the 5th International Weed Science Congress, June, 2008, in Vancouver, Canada see: http://iws.ucdavis.edu/5intlweedcong.htm

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* indicates web-site reference only

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Abdulghader, K., Nojavan, M. and Naghshbandi, N. 2008. Chemical stress induced by heliotrope (*Heliotropium europaeum* L.) allelochemicals and increased activity of antioxidant enzymes. Pakistan Journal of Biological Sciences 11(6): 915-919. (Presenting evidence for allelopathic effects of extracts of *H. europaeum*, inhibiting germination of an unspecified *Cuscuta* sp.)

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Asiah, O., Nurhanan, M.Y. and Mohd Ilham, A. 2007. Determination of bioactive peptide (4.3 kDa) as an aphrodisiac marker in six Malaysian plants. Journal of Tropical Forest Science 19(1): 61-63. (Results suggest that a *Rafflesia* sp. may contain a bioactive peptide that increases the testosterone level in rat leydig cells.)

Azpeitia, F. and Lara, C. 2006. Reproductive biology and pollination of the parasitic plant *Psittacanthus calyculatus* (Loranthaceae) in central México. Journal of the Torrey Botanical Society 133(3): 429-438. (Pollination of this 'significant pest of woodlands and farmlands' is mainly by humming birds.)

Babalola, O.O., Berner, D.K. and Amusa, N.A. 2007. Evaluation of some bacterial isolates as germination stimulants of *Striga hermonthica*. African Journal of Agricultural Research 2007 2(1): 027-030. (Presenting some evidence for the stimulation of *S. hermonthica* germination by isolates of *Pseudomonas* sp., *Klebsiella oxytoca* and *Enterobacter sakazakii*.)

Babalola, O.O. and Odhiambo, G.D. 2008. Effect of inoculation with *Klebsiella oxytoca* '10mkr7' on

Striga suicidal germination in *Zea mays*. World Applied Sciences Journal 3(1): 57-62. (In a pot study, inoculation with the rhizobacterium *K. oxytoca* increased *Striga* infestation in maize. Abstract suggests *K. oxytoca* 'could stimulate suicidal germination' but not clear if this was observed.)

Babiker, A.G.T., Ahmed, E.A., Dawoud, D.A. and Abdella, N.K. 2007. *Orobanche* species in Sudan: history, distribution and management. Sudan Journal of Agricultural Research 10:107-114. (Reviewing the problems from *O. ramosa* (on tomato and other Solanaceae) and the serious new problem of *O. crenata* on faba bean, first seen on one site in 2001, and now present at 90 sites. See news item above.)

Baby, A.R., Migliato, K.F., Maciel, C.P.M., Zague, V., Pinto, C.A.S.de O., Salgado, H.R.N., Kaneko, T.M. and Velasco, M.V.R. 2007. Accelerated chemical stability data of O/W fluid emulsions containing the extract of *Trichilia catigua* Adr. Juss (and) *Ptychopetalum olacoides* Bentham. Revista Brasileira de Ciências Farmacêuticas 43(3): 405-412.

Bacchetta, G., Pontecorvo, C. and Vacca, R. 2007. (The flora of Monte Arcuentu (SW Sardinia).) (in Italian) Webbia 62(2): 175-204. (Noting the occurrence of 7 species of *Orobanche*.)

Badu-Apraku, B., Lum, A.F., Fakorede, M.A.B., Menkir, A., Chabi, Y., The, C., Abdulai, M., Jacob, S. and Agbaje, S. 2008. Performance of early maize cultivars derived from recurrent selection for grain yield and *Striga* resistance. Crop Science 48(1): 99-112. (EV DT-Y 2000 STR C_1, TZE-W Pop DT STR C_3 from the selection program, along with ACR 94 TZE Comp5-W, had stable grain yield under *Striga*-infested and non-infested conditions.)

Bar-Nun, N., Sachs, T. and Mayer, A.M. 2008. A role for IAA in the infection of *Arabidopsis thaliana* by *Orobanche aegyptiaca*. In: Ridge, I. and Jackson, M. (eds) Annals of Botany 101(2): 261-265. (Concluding that *Orobanche* manipulates the host by acting as a sink for auxin, and suggesting that disruption of auxin action could lead to control methods.)

Barcelona, J.F., Pelser, P.B., Cabutaje, E. and Bartolome, N.A. 2008. Another new species of *Rafflesia* (Rafflesiaceae) from Luzon, Philippines: *R. leonardi*. Blumea 53: 223-228. (This is the eighth new species to be named from the Philippines and the fourth from Luzon Island.)

Barcelona, J.F., Pelser, P.B., and Cajano, M.A.O.. 2008. *Rafflesia banahaw* (Rafflesiaceae), a new species from Luzon, Philippines. Bumea 52: 345-350. (The name for this small-flowered species from Mt. Banahaw, Luzon Island, is a synonym for *R. banahawensis* named by Madulid et al., 2006.)

Barcelona, J.F., Cajano, M.A.O. and Hadsall, A.S.. 2006. *Rafflesia baletei*, another new *Rafflesia* (Rafflesiaceae) from the Philippines. Kew Bulletin 61: 231-237. (A new species of *Rafflesia* from Mt. Isarog in the Bicol Region of southern Luzon, is named and described.)

*Barkman, T.J., McNeal, J.R., Lim, S.H., Coat, G., Croom, H.B., Young, N.D. and de Pamphilis, C.W. 2007. Mitochondrial DNA suggests at least 11 origins of parasitism in angiosperms and reveals genomic chimerism in parasitic plants. BMC Evolutionary Biology 7(248): (21 December 2007) (http://www.biomedcentral.com/content/pdf/1471-2148-7-248.pdf) (Incidentally showing substantial horizontal gene transfer from host species, especially in *Pilostyles* (Rafflesiaceae).)

Barrett, C.F. and Freudenstein, J.V. 2008. Molecular evolution of *rbc*L in the mycoheterotrophic coralroot orchids (*Corallorhiza* Gagnebin, Orchidaceae). Molecular Phylogenetics and Evolution 47(2): 665-679. (Characterizing 8 species that vary in photosynthetic competence and reporting a correlation between the development of *rbcL* pseudogenes and loss of photosynthesis.)

Beuth, J., Schneider, B. and Schierholz, J.M. 2008. Impact of complementary treatment of breast cancer patients with standardized mistletoe extract during aftercare: a controlled multicenter comparative epidemiological cohort study. Anticancer Research 28(1B): 523-528. (A survey involving 167 patients who received an extract of *Viscum album* HELIXOR over a 5-year period following conventional breast cancer treatment confirmed improved quality of life and significantly reduced persistent symptoms of the disease/treatment during that period.)

Boersma, M., Bishop, A., Goninon, C., Ong, C., Rudman, T. and Welsh, S. 1999. Establishment of a weed surveillance and response protocol for new pest plant incursions in Tasmania. In: Bishop, A.C., Boersma, M. and Barnes, C.D. (eds) 12th Australian Weeds Conference, Papers and Proceedings, Hobart, Tasmania, Australia, 12-16 September 1999: Weed management into the 21st century: do we know where we're going?: 651-654. (Noting a new record for *Cuscuta suaveolens* in Tasmania.)

Borges, L.M.S., Cragg, S.M., Bergot, J., Williams, J.R., Shayler, B. and Sawyer, G.S. 2008. Laboratory screening of tropical hardwoods for natural resistance to the marine borer *Limnoria quadripunctata*: the role of leachable and non-leachable factors. 62(1): 99-111. (Wood of *Minquartia guianensis* (Olacaceae) caused high mortality and reduced feeding of *L. quadripunctata*.)

Brand, J.E., Fox, J.E.D., Pronk, G. and Cornwell, C. 2007. Comparison of oil concentration and oil quality from *Santalum spicatum* and *S. album*

plantations, 8-25 years old, with those from mature *S. spicatum* natural stands. Australian Forestry 70(4): 235-241.

Braby, M.F. and Nishida, K. 2007. The immature stages, larval food plants and biology of neotropical mistletoe butterflies. I. The *Hesperocharis* group (Pieridae: Anthocharidini). Journal of the Lepidopterists' Society 61(4): 181-195. (Discussing the evolution of this group on Loranthaceae in S. and C. America.)

Brault, M., Betsou, F., Jeune, B., Tuquet, C., Sallé, G., 2007. Variability of *Orobanche ramosa* populations in France as revealed by cross infestations and molecular markers. Environmental and Experimental Botany 61(3): 272-280. (Referring to the 'dramatic spread' of *O. ramosa* in rapeseed, tobacco and hemp, and detecting the existence of 3 pathovars, having greatest virulence on their respective host crops.)

Buchanan, M.S., Carroll, A.R., Edser, A., Sykes, M., Fechner, G.A., Forster, P.I., Guymer, G.P. and Quinn, R.J. 2008. Lysianadioic acid, a carboxypeptidase B inhibitor from *Lysiana subfalcata*. Bioorganic & Medicinal Chemistry Letters 18(4): 1495-1497. (Confirming a source of carboxypeptidase B (CPB) inhibitor from *L. subfalcata* (Loranthaceae).)

Bullock, J.M., Pywell, R.F. and Coulson-Phillips, S.J. 2008. Managing plant population spread: prediction and analysis using a simple model. Ecological Applications 18(4): 945-953. (Spread of *Rhinanthus minor* was studied over an 8-year period, confirming the benefits of hay-cutting over grazing, and endorsing the value of modelling in the development of management systems.)

Burdock, G.A. and Carabin, I.G. 2008. Safety assessment of sandalwood oil (*Santalum album* L.). Food and Chemical Toxicology 46(2): 421-432. (Sandalwood oil has anticarcinogenic, antiviral and bactericidal activity but is not mutagenic. There is occasional irritation or sensitization but the authors conclude that the oil is safe at present use levels.)

Büssing, A., Kochskämper, H., Rieger, S., Schierholz, J.M., Schlodder, D. and Schietzel, M. 2007. *In vitro* response of stimulated B-CLL lymphocytes of patients treated with *Viscum album* L. extracts. Anticancer Research 27(6B): 4195-4200.

Butaud, J.F., Raharivelomanana, P., Bianchini, J.P. and Gaydou, E.M. 2008. *Santalum insulare* acetylenic fatty acid seed oils: comparison within the *Santalum* genus. Journal of the American Oil Chemists' Society 85(4): 353-356. (Seeds of *S. insulare* are rich in ximenynic acid, comparing favourably with *S. album* and *S. obtusifolium*. *S. acuminatum, S. lanceolatum, S. spicatum* and *S. murrayanum* are richer in oleic acid.)

Cameron, D.D., Geniez, J.M., Seel, W. E. and Irving, L.J. 2008. Suppression of host photosynthesis by the parasitic plant *Rhinanthus minor*. Annals of Botany 101(4): 573-578. (Showing that *R. minor* suppresses photosynthesis significantly in *Phleum bertolini* but only slightly in *Plantago lanceolata*.)

Carneiro, A.L.B., Teixeira, M.F.S., de Oliveira, V.M.A., Fernandes, O.C.C., Cauper, G. S. de B. and Pohlit, A.M. 2008. Screening of Amazonian plants from the Adolpho Ducke forest reserve, Manaus, state of Amazonas, Brazil, for antimicrobial activity. Memórias do Instituto Oswaldo Cruz 103(1): 31-38. (*Chaunochiton kappleri* (Olacaceae) among species screened. Not mentioned as active in abstract.)

Chen, S.Y., Kuo, S.R., Chien, C.T., Baskin, J.M. and Baskin, C.C. 2007. Germination, storage behaviour and cryopreservation of seeds of *Champereia manillana* (Opiliaceae) and *Schefflera octophylla* (Araliaceae). Seed Science and Technology 35(1): 154-164. (Seeds of *C. manillana* lost viability faster at -20^0C than at 4 or 15^0C , but retained full viability in liquid N (-196^0C) for 12 months.)

Chen Hong, Jing FuChun, Li ChangLing, Tu PengFei, Zheng QiuSheng and Wang ZhengHua 2007. Echinacoside prevents the striatal extracellular levels of monoamine neurotransmitters from diminution in 6-hydroxydopamine lesion rats. Journal of Ethnopharmacology 114(3): 285-289. (Concluding that an extract from *Cistanche salsa* could be of value in treating Parkinson's disease.)

Chen WenHao, Xu ChunMing, Zeng JianLi, Zhao Bing, Wang XiaoDong, Wang YuChun 2007. Improvement of echinacoside and acteoside production by two-stage elicitation in cell suspension culture of *Cistanche deserticola*. World Journal of Microbiology & Biotechnology 23(10): 1451-1458.

Choi SangHoon, Park KwanHa, Yoon TaekJoon, Kim JongBae, Jang YongSuk and Choe ChungHyeon 2008. Dietary Korean mistletoe enhances cellular non-specific immune responses and survival of Japanese eel (*Anguilla japonica*). Fish & Shellfish Immunology 24(1): 67-73. (Concluding that KM-110, an extract of *Viscum album* var. *coloratum* could be utilized as a promising immuno-stimulating substance for a diet in aquaculture.)

Chu WenFeng, Qiao GuoFen, Bai YunLong, Pan ZhenWei, Li GuoYu, Piao XianMei, Wu Ling, Lu YanJie and Yang BaoFeng 2008. Flavonoids from Chinese *Viscum coloratum* produce cytoprotective effects against ischemic myocardial injuries: inhibitory effect of flavonoids on PAF-induced Ca^2 overload. Phytotherapy Research 22(1): 134-137.

ChunFeng, Y. and Guo, Y. 2007. Pollen-ovule ratio and gamete investment in *Pedicularis* (Orobanchaceae). Journal of Integrative Plant Biology 49: 38-245.

Cooney, S.J.N. and Watson, D.M. 2008. An experimental approach to understanding the use of mistletoe as a nest substrate for birds: nest predation. Wildlife Research 35(1): 65-71. (Providing some evidence that the reason many bird species nest preferentially in mistletoes in Australia is reduced predation.)

Court-Picon, M., Buttler, A. and de Beaulieu, J.L. 2006. Modern pollen/vegetation/land-use relationships in mountain environments: an example from the Champsaur valley (French Alps). Vegetation History and Archaeobotany 15(3): 151-168. (Referring to *Rhinanthus* as a pollen marker with a significance common to other regions.

Daud, A., Habib, N. and Sánchez Riera, A. 2007. (Diuretic activity of aqueous extracts of *Polylepis australis* (quenoa) and *Phrygilanthus acutifolius* (corpo). Comparative study in rats.) (in Spanish) In: Martinez, J.L. and Garcia, J.M.P. (eds) Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 6(6): 337-339. (Extracts of *P. australis* (Rosaceae) proved diuretic. In contrast extracts from flowers of *P. acutiformis* (= *Notanthera acutiformis*) (Loranthaceae) acted as a 'K^+-saver'.)

David-Schwartz, R., Runo, S., Townsley, B., Machuka, J. and Sinha, N. 2008. Long-distance transport of mRNA via parenchyma cells and phloem across the host-parasite junction in *Cuscuta*. New Phytologist 179: 1133-1141. (Showing movement of mRNAs from tomato and alfalfa into dodder and indicating host parenchyma cells as origins for the messages: mRNA was stable up to 20 cm in the host. See also item above 'Plant parasite wiretaps host'.)

Davis, C.C., Endress, P.K. and Baum, D.A. 2008. The evolution of floral gigantism. In: Hardtke, C. and Torii, K. (eds) Current Opinion in Plant Biology 11(1): 49-57. (*Rafflesia arnoldii* among the examples discussed.)

Davis, C.C., Latvis, M., Nickrent, D.L, Wurdack, K.J. and Baum, D.A. 2007. Floral gigantism in Rafflesiaceae. Science 315: 1812. (Using over 11,000 bp of sequence data, Rafflesiaceae s. str. were nested within Euphorbiaceae. Quantitative analyses of floral size evolution showed a 79-fold increase over 46 million year period.)

Daws, M.I., Pritchard, H.W. and van Staden, J. 2008. Butenolide from plant-derived smoke functions as a strigolactone analogue: evidence from parasitic weed seed germination. South African Journal of Botany 74(1): 116-120. (Noting the comparable structures of butenolide and strigolactones and confirming high levels of germination stimulation on a range of root parasites including *Striga, Orobanche, Cistanche, Conopholis* and *Lathraea* spp.)

de Groote, H., Wangare, L., Kanampiu, F., Odendo, M., Diallo, A., Karaya, H. and Friesen, D. 2008. The potential of a herbicide resistant maize technology for *Striga* control in Africa. Agricultural Systems 97(1/2): 83-94. (A survey designed to assess the potential for introduction of imazapyr-resistant maize established that 70% of farmers in the *Striga*-prone area of 246,000 ha in W. Kenya have *Striga* and most would be willing to purchase the seed, suggesting a demand for at least 2000 tons annually.)

de Vega, C., Berjano, R., Arista, M., Ortiz, P.L., Talavera, S. and Stuessy, T.F. 2008. Genetic races associated with the genera and sections of host species in the holoparasitic plant *Cytinus* (Cytinaceae) in the Western Mediterranean basin. New Phytologist 178(4): 875-887. (Confirming genetic differentiation of 5 races of *Cytinus* associated with different host species within Cistaceae.)

Deepak, S.A., Oros, G., Sathyanarayana, S.G., Shetty, H.S. and Sashikanth, S. 2007. Antisporulant activity of watery extracts of plants against *Sclerospora graminicola* causing downy mildew disease of pearl millet. American Journal of Agricultural and Biological Sciences 2(1): 36-42. (An extract of *Santalum album* completely inhibited zoosporangium formation.)

Der, J.P. and. Nickrent, D.L 2008. A molecular phylogeny of Santalaceae (Santalales). Systematic Botany 33: 107-116. (An analysis of all genera in Santalaceae using nuclear and chloroplast gene sequences showed the family to be polyphyletic, thus highlighting the need for reclassification.)

Dias, D.P. and Marenco, R.A. 2007. Fluorescence characteristics and photoinhibition in saplings of manwood on clear days and under overcast conditions. Scientia Agricola 64(6): 595-600. (Reporting studies on *Minquartia guianensis* (Olacaceae).)

Dobreva, Z.G. and Stanilova, S.A. 2007. The immunomodulatory activity of C3 binding glycoprotein (C3bgp) is mediated by the complement receptor type III and mitogen-activated protein kinase signal transduction pathways. Immunopharmacology and Immunotoxicology 29(3/4): 549-562. (Isolated from *Cuscuta europaea*.)

Dor, E., Eizenberg, H., Joel, D.M., Levitin, E. and Hershenhorn, J. 2008. First report of *Orobanche crenata* parasitism on ornamental anemone (*Anemone coronaria*) in Israel. Plant Disease 92(4): 655.

Ducarme, V., Risterucci, A.M. and Wesselingh, R.A. 2008. Development of microsatellite markers in *Rhinanthus angustifolius* and cross-species amplification. Molecular Ecology Resources 8(2):

384-386. (A set of microsatellite markers developed for *R angustifolius* was also found to have utility for R. *minor*, *R. mediterraneus, R. glacialis*, and *R. alectorolophus*, suggesting broad utility for studies of this genus.)

Ejeta, G. 2007. Breeding for *Striga* resistance in sorghum: exploitation of an intricate host-parasite biology. In: Albrecht, B., Bernardo, R., Godshalk, E.B., Lamkey, K.R. and Ortiz, R. (eds) Crop Science 47(S3): S216-S227. (Describing the rationale behind the development of *Striga*-resistant sorghum varieties.)

Erbar, C. 2007. Current opinions in flower development and the evo-devo approach in plant phylogeny. *Plant Systematics and Evolution* 269: 107-132.

Escher, P., Peuke, A.D., Bannister, P., Fink, S., Hartung, W., Jiang Fan and Rennenberg, H. 2008. Transpiration, CO_2 assimilation, WUE, and stomatal aperture in leaves of *Viscum album* (L.): effect of abscisic acid (ABA) in the xylem sap of its host (*Populus* x *euamericana*). Plant Physiology and Biochemistry 46(1): 64-70. (Showing that raised levels of ABA in the droughted host do not influence levels in the parasite; also that ABA levels in leaves of *V. album* are relatively high and it is presumed the stomata have low ABA-sensitivity.)

Fairbarns, M. and Egger, J.M. 2007. *Castilleja victoriae* (Orobanchaceae): a new rare species from southeastern Vancouver Island, British Columbia, Canada, and the adjacent San Juan Islands, Washington, U.S.A. Madroño 54(4): 334-342. (Describing *C. victoriae*, known from only 3 localities.)

Fasanu, P.O. and Oyedapo, O.O. 2008. Phragmanthin-peptide from fresh leaves of African mistletoe (*Phragmanthera incana*): purification and metabolic activities. In: Singh, V.K., Govil, J.N. and Sharma, R.K. (eds) Phytopharmacology and therapeutic values I: 39-47.

Fernández-Aparicio, M., Andolfi, A., Evidente, A., Pérez-de-Luque, A. and Rubiales, D. 2008. Fenugreek root exudates show species-specific stimulation of *Orobanche* seed germination. Weed Research (Oxford) 48(2): 163-168. (Fractions of exudate from fenugreek stimulated germination of *O. crenata, O. ramosa* and *O. foetida* (the latter does not respond to GR24). These stimulants, however, can be over-ruled by inhibitors – see next item.)

Fernández-Aparicio, M., Emeran, A.A. and Rubiales, D. 2008. Control of *Orobanche crenata* in legumes intercropped with fenugreek (*Trigonella foenum-graecum*). Crop Protection 27(3/5): 653-659. (Concluding that inhibition of germination by allelochemicals from fenugreek roots may explain the reduction of *O. crenata* infection (confirmed by Evidente *et al.*, 2007 – see Haustorium 52).)

Fernando, E.S. and Ong, P.S. 2005. The genus *Rafflesia* R. Br. (Rafflesiaceae) in the Philippines. Asia Life Sciences 14: 263-270. (A new species, *Rafflesia mira*, is named and described from Mindanao Island).

Ferrero, M., Crosetti, D., Dominighini, A., de Alvarez, M., Ronco, M.T., Wagner, M.L., Gurni, A., Carnovale, C. and Luquita, A. 2007. Effect of the vehicle polyvinylpyrolidone and the methanolic fraction of *Ligaria cuneifolia* (Argentine Mistletoe) extract on hemorheological properties and biliary secretion in rats. Clinical Hemorheology and Microcirculation 36(2): 95-104. (Extracts of *L. cuneifolia* (Loranthaceae) show increased blood viscosity and decreased plasma cholesterol levels in rats.)

Formisano, C., Rigano, D., Senatore, F., Simmonds, M.S.J., Bisio, A., Bruno, M. and Rosselli, S. 2008. Essential oil composition and antifeedant properties of *Bellardia trixago* (L.) All. (sin. *Bartsia trixago* L.) (Scrophulariaceae). Biochemical Systematics and Ecology 36(5/6): 454-457. (Oils from the roots, but not the shoots, showed antifeedant activity against larvae of *Spodoptera littoralis*.)

Frajman, B. and Schönswetter, P. 2008. Notes on some rare *Orobanche* and *Phelipanche* species (Orobanchaceae) in Croatia. Acta Botanica Croatica 67(1): 103-107. (*Orobanche salviae* and *O. alsatica* are reported for the first time in 100 years. *O. laserpitii-sileris*, and *P. lavandulacea* also recorded.)

Freudenstein, J.V. and Senyo, D.M. 2008. Relationships and evolution of *matK* in a group of leafless orchids (*Corallorhiza* and Corallorhizinae; Orchidaceae: Epidendroideae). American Journal of Botany 95(4): 498-505. (Characterizing relationships among these mycoheterotrophs, and building a case for this group to shed light on the transition from autotrophy to heterotrophy in plants.)

Fu GuiFang, Chen Min, Cui GuangHong, Xiao SuPing and Huang LuQi 2007. Comparative anatomy research on *Cistanche deserticola* and *Cistanche tubulosa.* China Journal of Chinese Medicine and Pharmacy 22(12): 840-843. (Confirming distinctive anatomy in the two species, and noting greater adaptation to arid conditions in *C. deserticola* than in *C. tubulosa*.)

Galang, R. and. Madulid, D.A. 2006. A second new species of *Rafflesia* (Rafflesiaceae) from Panay Island, Philippines. Folia Malaysiana 7: 1-8. (This species was discovered by Renee Galang during his expedition to Mt. Igtuog and Mt. Sakpaw in the Central Panay mountain range during the course of his study of the Philippine Spotted Deer).

Gamalei, Yu.V. 2007. The evolution of carbohydrate and nitrogenous nutrition in Scrophulariaceae

family. Botanicheskiĭ Zhurnal 92(12): 1793-1808. (The structural and functional relations between the organizing of transport communications and the types of nutrition as well as the evolutionary sequence of host and parasitic taxa establishment are discussed.)

Gannon, A., Sontag, S. and Skov, K. 2006. Montana forest insect and disease conditions and program highlights 2006. Forest Health Protection Report - Northern Region, USDA Forest Service No.07-1: 73 pp. (Including update on *Arceuthobium*.)

Goldwasser, Y., Yoneyama, K., Xie XiaoNan and Yoneyama, K. 2008. Production of strigolactones by *Arabidopsis thaliana* responsible for *Orobanche aegyptiaca* seed germination. Plant Growth Regulation 55(1): 21-28. (Showing that although *A. thaliana* is not mycotrophic, it does exude at least 3 stimulants for *Orobanche aegyptiaca*, one of which is orobanchol.)

*Gomez-Roldan, V., Fermas, S., Brewer, P.B., Puech-Pages, V., Dun, E.A., Pillot, J-P., Letisse, F., Matusova, R., Danoun, S., Portais, J-C., Bouwmeester, H., Becard, G., Beveridge, C.A., Rameau, C. and Rochange, S.F. 2008. Strigolactone inhibition of shoot branching. Nature. http://dx.doi.org/10.1038/nature07271 (A highly branched mutant pea *rms1*, is shown to be deficient in strigolactone and normal branching is restored by application of GR24. See also literature highlight above.)

Gong Fang, Ma YanHui, Ma AnLun, Yu QiWen, Zhang JiYing, Nie Hong, Chen, Shen BaiHua, Li NingLi and Zhang DongQing 2007. A lectin from Chinese Mistletoe Increases γδ T cell-mediated cytotoxicity through induction of caspase-dependent apoptosis. Acta Biochimica et Biophysica Sinica 39(6): 445-452. (The results indicated that the extract of *Viscum album* tested is a potent immunomodulator to human γδ T cell cytotoxicity, apoptosis and cytokine production.)

González-Verdejo, C.I., Die, J.V., Nadal, S., di Pietro, A., Barandiaran, X., Cubero, J.I. and Román, B. 2008. Isolation and expression analysis of a cobalamin-independent methionine synthase gene from the parasitic plant *Orobanche ramosa*. Scientia Horticulturae 116(3): 337-341. (The gene is important in establishing sinks and was found to be expressed in tubercles and highly expressed in flowers of the parasite.)

Grenz, J.H., Iştoc, V. A., Manschadi, A.M. and Sauerborn, J. 2008. Interactions of sunflower (*Helianthus annuus*) and sunflower broomrape (*Orobanche cumana*) as affected by sowing date, resource supply and infestation level. Field Crops Research 107(2): 170-179. (Infestation affected by crop sowing date, water and nutrient supply. Damage was proportional to parasite biomass.)

Grewell, B.J. 2008. Parasite facilitates plant species coexistence in a coastal wetland. Ecology 89(6): 1481-1488. (The main host for *Cuscuta salina* was *Plantago lanceolata*, but *Cordylanthus maritimus* (Orobanchaceae) was also a host, suffering no ill effect, as it presumably benefited from reduction of other host species.)

Grossarth-Maticek, R. and Ziegler, R. 2007. Prospective controlled cohort studies on long-term therapy of ovarian cancer patients with mistletoe (*Viscum album* L.) extracts Iscador. Arzneimittel Forschung 57(10): 665-678. (Concluding that the extract Iscador 'might have the effect of prolonging overall survival of ovarian cancer patients. In the short term, psychosomatic self-regulation increases more markedly under Iscador therapy than under conventional therapy alone.')

Gupta, R.S., Kachhawa, J.B.S. 2007. Contraceptive and toxicological evaluation of *Dendrophthoe falcata* stem extract in male albino rats. Journal of Herbs, Spices & Medicinal Plants 13(3): 37-46. (Showing that oral administration of crude methanol extract of *D. falcata* stem can lead to sterility in male rats.)

Gupta, R.S., Kachhawa, J.B.S. and Sharma, A. 2007. Effect of methanolic extract of *Dendrophthoe falcata* stem on reproductive function of male albino rats.: Journal of Herbal Pharmacotherapy 7(2): 1-13. (Concluding that *D. falcata* brought about the inhibition of spermatogenesis.)

Harbaugh, D.T. 2007. A taxonomic revision of Australian northern sandalwood (*Santalum lanceolatum*, Santalaceae). Australian Systematic Botany 20(5): 409-416. (Genetic analysis confirms there has been confusion between *S. lanceolatum* and *S. leptocladum* and that the former, more valuable species, is rarer than previously thought.)

Harbaugh, D.T. 2008. Polyploid and hybrid origins of pacific island sandalwoods (*Santalum*, Santalaceae) inferred from low-copy nuclear and flow cytometry data. International Journal of Plant Sciences 169: 677-685. (The low-copy nuclear gene waxy was sequenced and flow cytometry used to estimate ploidy level in 16 species of *Santalum*. The phylogeny suggests at least six independent polyploid events and that polyploidy plays a role in colonization).

Hassanali, A., Herren, H., Khan, Z.R. and Pickett, J.A., Woodcock, C.M. 2008.Integrated pest management: the push-pull approach for controlling insect pests and weeds of cereals, and its potential for other agricultural systems including animal husbandry. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 363(1491):

611-621. (Another general review of the 'push-pull' technique, controlling *Striga* and stem borers.)

Hättenschwiler, S. and Zumbrunn, T. 2006. Hemiparasite abundance in an alpine treeline ecotone increases in response to atmospheric CO_2 enrichment. Oecologia 147(1): 47-52. (In a 3-year study, both *Melampyrum pratense* and *M. sylvaticum* benefited from higher CO_2 levels.)

He YaTing, Li Ming, Liu WenZhi, Zhang QuanFa and Dang GaoDi 2007. Comparison of gas exchange traits of 30 plant species in subalpine meadow in Foping National Reserve of Qinling Mountains. Journal of Wuhan Botanical Research 25(5): 451-456. (Among 30 species, *Pedicularis verticillata* had lowest photosynthesis, and *Euphorbia hylonoma* had lowest stomatal conductance.)

Heide-Jørgensen, H.S. 2008. Parasitic Flowering Plants. Leiden, Netherlands: Brill, 438 pp. (A major new volume, wonderfully illustrated. See Review above.)

Hiraoka, Y. and Sugimoto, Y. 2008. Molecular responses of sorghum to purple witchweed (*Striga hermonthica*) parasitism. Weed Science 56(3): 356-363. (30 sorghum genes that are up-regulated in response to *Striga* parasitism were studied in cultivars of sorghum differing in susceptibility. In the most susceptible cultivar jasmonic acid-responsive genes were induced while salicylic acid responsive genes were suppressed. In less susceptible cultivars the salicylic acid responsive genes were induced.)

Hironaka, M., Filippi, L., Nomakuchi, S. and Hariyama, T. 2008. Guarding behaviour against intraspecific kleptoparasites in the subsocial shield bug, *Parastrachia japonensis* (Heteroptera: Parastrachiidae). Behaviour: 145(6): 815-827. (*P. japonensis* provisions its burrows with drupes from *Schoepfia jasminodora* (Olacaceae).)

Hock, S.M., Wiecko, G. and Knezevic, S.Z. 2008. Glyphosate dose affected control of field dodder (*Cuscuta campestris*) in the tropics. Weed Technology 22(1):151-155. (*C. campestris* safely controlled on a range of ornamentals in Guam, using glyphosate at 140 g/ha.)

Hofmann, T.A. and Piepenbring, M. 2008. New species and records of *Asterina* from Panama. Mycological Progress 7(2): 87-98. (Including description of a new species of the bitunicate ascomycete, *Asterina gaiadendricola,* on *Gaiadendron punctatum* (Loranthaceae).)

Horneber MA, Bueschel G, Huber R, Linde K, Rostock M. Mistletoe therapy in oncology. 2008. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD003297. DOI: 10.1002/14651858.CD003297.pub2. (http://www.cochrane.org/reviews/en/ab003297.html) (Re claims that *Viscum album* extracts stimulate the immune system, improve survival, enhance quality of life and reduce adverse effects of chemo- and radiotherapy in cancer patients, the review, based on meta-analysis of 21 studies. found 'not enough evidence to reach clear conclusions about the effects on any of these outcomes'. However, more research is justified and 'patients receiving mistletoe therapy should be encouraged to take part in future trials.')

Hosagoudar, V.B., Archana, G.R. and Agarwal, D.K. 2007. Studies on foliicolous fungi-XXVIII. Indian Phytopathology 60(3): 345-349. (A new species, *Asterostomella strombosiae* noted on *Strombosia ceylanica* (Olacaceae).)

Hosseini, S.M., Kartoolinejad, D., Mirnia, S.K., Tabibzadeh, Z., Akbarinia, M. and Shayanmehr, F. 2007. The effects of *Viscum album* L. on foliar weight and nutrients content of host trees in Caspian forests (Iran). Polish Journal of Ecology 55(3): 579-583. (Measuring reduced leaf area and weight in *V. album*-infested hornbeam (*Carpinus betulus*) and ironwood (*Parrotia persica*) and increases in K, Mn and Zn.)

Huang BaoQiang, Luo YiBo, Yu FeiHai, Tang SiYuan, Dong Li and An DeJun 2007. Interspecific relationships of dominant species in orchid communities of forest vegetation in Huanglong Valley, Sichuan, China. Journal of Plant Ecology (Chinese Version) 31(5): 865-872. (Describing associations involving *Pedicularis davidii* and *P. humilis*.)

Idžojtic, M.**,** Glavaš, M.**,** Zebec, M., Pernar, R., Becarevic, J., Glova, K. and Plantak, S. 2007. (Yellow mistletoe and white-berried mistletoe on the area of the forest administrations Našice and Osijek.) (in Croatian) Šumarski List 131(3/4): 125-135. (In the areas surveyed, *Loranthus europaeus* occurred mainly on *Quercus* spp., while *Viscum album* was mainly on *Fraxinus pennsylvanica, Populus* spp., *Robinia pseudoacacia* and on walnut.)

Idžojtic, M.**,** Glavaš, M.**,** Zebec, M., Pernar, R., Beuk, P. and Prgic, I. 2006. (Intensity of infection with yellow mistletoe and white-berried mistletoe on the area of the forest administrations Vinkovci and Nova Gradiška.) (in Croatian) Šumarski List 130(9/10): 399-409. (Reporting widespread occurrence of *Loranthus europaeus* in *Quercus* spp. but rarely abundant or damaging, while *Fraxinus angustifolia* was sometimes more severely infected by *Viscum album*.)

Irwin, M.T. 2008. Feeding ecology of *Propithecus diadema* in forest fragments and continuous forest. International Journal of Primatology 29(1): 95-115. (Noting the importance of the fruits of the mistletoe *Bakerella clavata* (Loranthaceae) in the diet of *P. diadema* in Madagascar.)

Iwashina, T., López-Sáez, J.A. and Kitajima, J. 2008. Flavonoids from *Osyris alba*. Biochemical Systematics and Ecology 36(2): 146-147. (Three flavonol glycosides identified, of possible chemotaxonomic significance.)

Janakat, S. and Al-Thnaibat, O. 2008. Antilipoperoxidative effect of three edible plants extracts: *Viscum album*, *Arum dioscoridis* and *Eminium spiculatum*. Journal of Food Quality 31(1): 1-12. (Results suggest that these plants can be used as a condiment during food processing, to improve the quality, enhance flavour, increase the nutritional value and increase the shelf life of processed foods.)

Jayasuriya, K.M.G.G., Baskin, J.M., Geneve, R.L., Baskin, C.C. and Ching-Te Chien 2008. Physical dormancy in seeds of the holoparasitic angiosperm *Cuscuta australis* (Convolvulaceae, Cuscuteae): dormancy-breaking requirements, anatomy of the water gap and sensitivity cycling. Annals of Botany 102: 39-48. (Showing that dormancy-breaking treatments allow access to water via the hilar fissure in *C. australis*, rather than the micropyle as in other *Cuscuta* species.)

Jeanmonod, D. 2007. (Typification of a few broomrape taxa (Orobanchaceae).) (in French) Candollea 62(2): 193-204. (Five *Orobanche* spp in Corsica are represented by lectotypes – *O. amethystea* ssp. *castellana, O. rapum-genistae, O. rigens* f. *corsica, O. rigens* var. *nigricans* and *Phelypaea nana*; and two by holotypes – *O. minor* and *O. crenata*.)

Jiang Fan, Jeschke, W.D., Hartung, W. and Cameron, D.D. 2008. Does legume nitrogen fixation underpin host quality for the hemiparasitic plant *Rhinanthus minor*? Journal of Experimental Botany 59(4): 917-925. (Concluding that the success of *R. minor* on legumes is a function of nitrogen availability independently of nitrogen fixation by the host.)

Jin FuPing, Hua GuoHui. Ma YongQing, Wang DeSheng and Yuan CuiPing 2008. Effect of traditional Chinese medicinal herb extracts on *Orobanche minor* seed germination. Acta Botanica Boreali-Occidentalia Sinica 28(4): 777-783. (Some 240 traditional Chinese medicinal herbs were screened. Those causing greater than 50% stimulation or inhibition of *O. minor* germination are listed.)

Jongejans, E., Skarpaas, O. and Shea, K. 2008. Dispersal, demography and spatial population models for conservation and control management. In: Moloney, K.A. and Jeltsch, F. (eds) Perspectives in Plant Ecology, Evolution and Systematics 9(3/4): 153-170. (*Rhinanthus minor* among the 5 species modelled.)

Jullien, J. 2007. (Invasive plants of woody nurseries.) (in French) PHM Revue Horticole 497: 11-20. (Including reference to parasitic weeds.)

Kabambe, V.H., Kauwa, A.E. and Nambuzi, S.C. 2008. Role of herbicide (metalachlor) and fertilizer application in integrated management of *Striga asiatica* in maize in Malawi. African Journal of Agricultural Research 3(2): 140-146. (Reporting variable results of metolachlor herbicide, reducing *S. asiatica* in one season, not another. NPK fertilizer tended to increase *Striga* emergence but also greatly increased yields.)

Kabambe, V.H., Kanampiu, F., Nambuzi, S.C. and Kauwa, A.E. 2007. Evaluation of the use of herbicide (Imazapyr) and fertilizer application in integrated management of *Striga asiatica* in maize in Malawi. African Journal of Agricultural Research 2(12): 687-691. (Concluding that fertilizer use is the single most important factor in increasing maize yield under *S. asiatica* infection, while herbicide use is important for reducing emergence.)

Kamara, A.Y., Menkir, A., Chikoye, D., Omoigui, L.O. and Ekeleme, F. 2007. Cultivar and nitrogen fertilization effects on *Striga* infestation and grain yield of early maturing tropical maize. Maydica 52(4): 415-423. (*Striga*-tolerant maize varieties ACR 94TZECOMP5-W and ACR 94TZECOMP5-Y showed lower *Striga* emergence, higher yield and better response to N than a susceptible check under *Striga* infestation.)

Kang TaeBong, Song SeongKyu, Yoon TaekJoon, Yoo YungChoon, Lee KwanHee, Her and Kim JongBae 2007. Isolation and characterization of two Korean mistletoe lectins. Journal of Biochemistry and Molecular Biology 40(6): 959-965. (Showing that isolectins in *Viscum coloratum* have varied bioactivities and that 'KML-IIL' may be developed as an anti-cancer agent.)

Kang TaeBong, Yoo YungChoon, Lee KwanHee, Yoon HoSup, Her Erk, Kim JongBae and Song SeongKyu 2008. Korean mistletoe lectin (KML-IIU) and its subchains induce nitric oxide (NO) production in murine macrophage cells. Journal of Biomedical Science 15(2): 197-204. (Involving *Viscum album* ssp. *coloratum*.)

Karg, S. 2008. Direct evidence of heathland management in the early Bronze Age (14th century B.C.) from the grave-mound Skelhoj in western Denmark. Vegetation History and Archaeobotany 17(1): 41-49. (*Cuscuta epithymum* L. was found in 31% of the sod samples which were otherwise dominated by *Calluna vulgaris*.)

Karkanis, A., Bilalis, D. and Efthimiadou, A. 2007. Tobacco (*Nicotiana tabaccum*) infection by branched broomrape (*Orobanche ramosa*) as influenced by irrigation system and fertilization, under East Mediterranean conditions. Journal of Agronomy 6(3): 397-402. (Drip irrigation was

superior to sprinkler irrigation and/or green manuring, reducing *O. ramosa* over 70%.)

Kawachi, N., Fujimaki, S., Sakamoto, K., Ishioka, N.S., Matsuhashi, S. and Sekimoto, H. 2008. Analysis of NO_3 interception of the parasitic angiosperm *Orobanche* spp. using a positron-emitting tracer imaging system and $^{13}NO_3^-$: a new method for the visualization and quantitative analysis of the NO_3 interception ratio. Soil Science and Plant Nutrition 54(3): 408-416. (The nitrogen nutrient interception ratio for an *Orobanche* sp. growing on *Trifolium pratense* was about 70%.)

Kelly, D., Ladley, J.J. and Robertson, A.W. 2007. Is the pollen-limited mistletoe *Peraxilla tetrapetala* (Loranthaceae) also seed limited? Austral Ecology 32(8): 850-857. (Apparently yes – implications discussed.)

Kenaley, S., Mathiasen, R. and Harner, E.J. 2008. Mortality associated with a bark beetle outbreak in dwarf mistletoe-infested ponderosa pine stands in Arizona. Western Journal of Applied Forestry 23(2): 113-120. (Concluding ponderosa pines severely infected with dwarf mistletoe are at the greatest risk of attack by bark beetles (*Ips* spp.) during outbreak years in northern Arizona.)

Khan, Z.R., Amudavi, D.M., Midega, C.A.O., Wanyama, J.M. and Pickett, J.A. 2008. Farmers' perceptions of a 'push-pull' technology for control of cereal stemborers and *Striga* weed in western Kenya. Crop Protection 27(6): 976-987. (A survey based on interviews with 923 farmers, about half of whom had adopted the 'push-pull' technology.)

Khan, Z.R., Midega, C.A.O., Amudavi, D.M., Hassanali, A. and Pickett, J.A. 2008. On-farm evaluation of the 'push-pull' technology for the control of stemborers and striga weed on maize in western Kenya. Field Crops Research 106(3): 224-233. (A study involving 280 farmers comparing 'push-pull' plots with maize monocrop and confirming farmer enthusiasm for the reductions in *Striga* and stemborers achieved, increased yields and improved soil fertility.)

Khan, Z.R., Midega, C.A.O., Njuguna, E.M., Amudavi, D.M., Wanyama, J. M. and Pickett, J.A. 2008. Economic performance of the 'push-pull' technology for stemborer and *Striga* control in smallholder farming systems in western Kenya. Crop Protection 27: 1084-1097. (Detailed economic analysis on 60 farms over 4-7 years showed that costs of the 'push-pull' system involving intercropping with *Desmodium uncinatum* were higher in the first year, than mono-cropping or intercropping with beans, but costs were comparable or lower in subsequent years and net benefits were highly favourable.)

Khan, Z.R., Pickett, J.A., Hassanali, A., Hooper, A.M. and Midega, C.A.O. 2008. *Desmodium* species and associated biochemical traits for controlling *Striga* species: present and future prospects. Weed Research 48: 302–306. (Describing the suppression of *Striga* spp. by allelopathic exudates from *Desmodium* spp. including *D. uncinatum* and speculating on the possibilities for transferring the characteristic from *Desmodium* into edible legumes and even into the cereal crops themselves.)

Khanh TranDang, Cong LuongChi, Xuan TranDang, Lee SunJoo, Kong DongSoo and Chung IllMin 2008. Weed-suppressing potential of dodder (*Cuscuta hygrophilae*) and its phytotoxic constituents. Weed Science 56(1): 119-127. (Dried material of *Cuscuta hygrophilae* suppresses weeds in rice at 1-2 t/ha, apparently due to its content of cinnamic acid, dihydro-5,6-dehydrokavain, and methyl cinnamate.)

Khwaja, T.A., Tayyaba Wajahat, Ishtiaq Ahmad, Hoessli, D.C., Walker-Nasir, E., Afshan Kaleem, Qazi, W.M., Shakoori, A.R. and Nasir-ud-Din 2008. *In silico* modulation of apoptotic Bcl-2 proteins by mistletoe lectin-1: functional consequences of protein modifications. Journal of Cellular Biochemistry 103(2): 479-491.

Kim EunYoung, Kim EunKyoung, Lee HyunSam, Sohn YoungJoo, Soh YunJo, Jung HyukSang and Sohn NakWon 2007. Protective effects of *Cuscutae semen* against dimethylnitrosamine-induced acute liver injury in Sprague-Dawley rats. Biological & Pharmaceutical Bulletin 30(8): 1427-1431. (Results suggest that the product from *Cuscuta chinensis* may be useful in preventing fibrogenesis after liver injury.)

Kim, N.C., Kim, J.B. and Kwak, H.S. 2008. Microencapsulation of Korean mistletoe (*Viscum album* var. *coloratum*) extract and its application into milk. Asian-Australasian Journal of Animal Sciences 21(2): 299-306.

Kiviniemi, K. 2008. Effects of fragment size and isolation on the occurrence of four short-lived plants in semi-natural grasslands. Acta Oecologica 33(1): 56-65. (Including observations on *Rhinanthus minor* in Swedish grasslands.)

Koch, C., Reichling, J., Schneele, J. and Schnitzler, P. 2008. Inhibitory effect of essential oils against herpes simplex virus type 2. Phytomedicine 15(1/2): 71-78. (Including mediocre results with oil from *Santalum album*.)

Kohlen, W. and Bouwmeester, H.J. 2007. (Below-ground communication: the triangular relation between host plant, parasitic plant and mycorrhizal fungus.) (in German) Gewasbescherming 38(4): 145-149. (Reviewing the topic of strigolactones and their dual role.)

Kondo, Y., Tadokoro, E., Matsuura, M., Iwasaki, K., Sugimoto, Y., Miyake, H., Takikawa, H. and Sasaki,

M. 2007. Synthesis and seed germination stimulating activity of some imino analogs of strigolactones. Bioscience, Biotechnology and Biochemistry 71(11): 2781-2786. (Among the tested compounds, 3-pyridyliminoacetonitrile showed higher germination of *O. crenata* than GR24, demonstrating that it is not always essential to have the Michael acceptor of the C-D ring junction moiety which has been proposed necessary for activity.)

Kone, M., Vangah-Mandah, O.M., Kouakou, H., Angoue, P.Y., Nahounou, M.B., Yao, J., Banga, B.N., Ekaza, D.J., D'Horpock, A.F. and Ehouan, E.E. 2007. (Effect of *Sacoglottis gabonensis* (Baille) Urban and *Okoubaka aubrevillei* Normand and Pellegrin on the in vitro growth of *Mycobacterium ulcerans*.) (in French) Médecine d'Afrique Noire 54(11): 549-554. (Reporting substantial inhibition of *Mycobacterium ulcerans* by extracts of *O. aubrevillei* (Octoknemataceae/Santalaceae).)

Kruijer, W., Stein, A., Schaafsma, W. and Heijting, S. 2007. Analyzing spatial count data, with an application to weed counts. Environmental and Ecological Statistics 14(4): 399-410. (Including reference to *Striga hermonthica*.)

Lamien-Meda, A., Lamien, C.E., Compaoré, M.M.Y., Meda, R.N.T., Kiendrebeogo, M., Zeba, B., Millogo, J.F. and Nacoulma, O.G. 2008. Polyphenol content and antioxidant activity of fourteen wild edible fruits from Burkina Faso. Molecules 13(3): 581-594. (*Ximenia americana* (Olacaceae) among those with highest phenolic and flavonoid content.)

Lee JiYeon, Kim JooYoung, Lee YongGyu, Byeon SeEun, Kim ByungHun, Rhee ManHee, Lee, A., Kwon MooSik, Hong SungYoul and Cho JaeYoul 2007. *In vitro* immunoregulatory effects of Korean mistletoe lectin on functional activation of monocytic and macrophage-like cells. Biological & Pharmaceutical Bulletin 30(11): 2043-2051.

Li AiRong and Guan KaiYun 2007. Mycorrhizal and dark septate endophytic fungi of *Pedicularis* species from northwest of Yunnan Province, China. Mycorrhiza 17(2): 103-109. (14 species of *Pedicularis* were shown to have high levels of colonisation by arbuscular mycorrhizal, ectomycorrhizal, and dark septate endophytic fungi (DSEF), suggesting a significant ecological role for them.)

Li AiRong and Guan KaiYun 2007. On cultivation of *Pedicularis* L. Acta Horticulturae Sinica 34(4): 1050-1054. (Reviewing the need for mycorrhizal infection and other ecological factors in successful establishment of *Pedicularis* spp.)

Li HaiYan, Du JingHong and Hu BaoZhong 2007. Microsporogenesis and development of male gametophyte of *B. rossica* Fedtsch. Journal of Northeast Agricultural University (English Edition) 14(4): 314-317. (*Boschniakia rossica* is described as a 'severely expensive herbal medicine', collected in Heilongjiang, China.)

Li Li, Tsao Rong, Yang, R., Liu ChunMing, Young, J.C. and Zhu HongHui 2008. Isolation and purification of phenylethanoid glycosides from *Cistanche deserticola* by high-speed counter-current chromatography. Food Chemistry 108(2): 702-710.

Li WenWei, Yang Ru and Cai DingFang (*et al*) 2008. Protective effects of cistanche total glycosides on dopaminergic neuron in substantia nigra of model mice of Parkinsons disease. Chinese Journal of Integrated Traditional and Western Medicine 28(3): 248-251.

Li YuFang, Xu QinWei, Zhang Li, Zhang WenChang and Feng ShuTang 2007. Effect of Chinese herbal medicine - cistanche and Radix Astragali on the development of early IFV embryo. Acta Agriculturae Universitatis Jiangxiensis 29(5): 805-808.

Liebst, B. and Schneller, J. 2008. Seed dormancy and germination behaviour in two *Euphrasia* species (Orobanchaceae) occurring in the Swiss Alps. Botanical Journal of the Linnean Society 156(4): 649-656. (Germination of *E. minima* and *E. salisburgensis* and hybrids spreads over 3 years.)

Lin ChangSong, Zuo JingHui and Liao Wen 2008. Species diversity of rare plant *Dipentodon sinicus* communities in Yushe National Forest Park. Bulletin of Botanical Research 28(3): 353-358. (Rosaceae, Ericaceae, Betulaceae, Fagaceae, Theaceae, Lauraceae, Caprifoliaceae, Cornaceae were the dominant families in *D. sinicus* communities.)

Liu ChunZhao and Cheng XiYu 2008. Enhancement of phenylethanoid glycosides biosynthesis in cell cultures of *Cistanche deserticola* by osmotic stress. Plant Cell Reports 27(2): 357-362. (*C. deserticola* is grown as a desert medicinal plant grown in western China.)

Lin HuiBin, Yang JinPing, Lin JianQun and Lin JianQiang 2008. Influence of hosts on hyperoside content in two kinds of Semen Cuscutae. China Journal of Chinese Medicine and Pharmacy 23(1): 12-15. (Hyperoside content in seeds of *Cuscuta chinensis* growing on *Scutellaria baicalensis* was higher than in seeds of *C. australis* growing on *Humulus scandens*.)

López-Ráez, J.A., Charnikhova, T., Gómez-Roldán, V., Matusova, R., Kohlen, W., de Vos, R., Verstappen, F., Puech-Pages, V., Bécard, G., Mulder, P. and Bouwmeester, H. 2008. Tomato strigolactones are derived from carotenoids and their biosynthesis is promoted by phosphate starvation. New Phytologist 178(4): 863-874. (Providing new evidence for the derivation of strigolactones from carotenoids. Also

showing their exudation markedly reduced by phosphate.)

Lu, L., Wang, H., Blackmore, S., Li, D.Z. and Dong, L.N. 2007. Pollen morphology of the tribe Rhinantheae (Orobanchaceae) and its systematic significances. Plant Systematics and Evolution 268(1/4): 177-198.

Lyu SuYun and Park WonBong 2006. Mistletoe lectin (*Viscum album coloratum*) modulates proliferation and cytokine expressions in murine splenocytes. Journal of Biochemistry and Molecular Biology 39(6): 662-670.

Lyu SuYun and Park WonBong 2007. Effects of Korean mistletoe lectin (*Viscum album coloratum*) on proliferation and cytokine expression in human peripheral blood mononuclear cells and T-lymphocytes. Archives of Pharmacal Research 30(10): 1252-1264.

Ma Lijie, Chen Guilin, Jin Shangwu and Wang Chenxia 2008. The anti-aging effect and the chemical constituents of *Cynomorium songaricum* Rupr. In: Gardner, G. and Craker, L.E. (eds) Acta Horticulturae 765. (*C. songaricum* is widespread in Mongolia and western China, mainly on *Nitraria* spp. and is used medicinally, as is *Cistanche*, as an anti-oxidant and to enhance kidney function. Key constituents are listed, including catechin.)

Ma XuePing, Kong BaoHua, Ye Min and Duan YunHui 2007. Selecting materials of antiviral activity to tobacco mosaic virus infection from some plant extracts. Southwest China Journal of Agricultural Sciences 20(5): 1023-1026. (Extracts causing significant inhibitory effect included *Cuscuta chinensis*.)

Maara, N.T., Karachi, M. and Ahenda, J.O. 2006. Effects of pre-germination treatments, desiccation and storage temperature on germination of *Carissa edulis*, *Vangueria madagascariensis* and *Ximenia americana* seeds. Journal of Tropical Forest Science 18(2): 124-129. (Seeds of *X. americana* (Olacaceae) lost some viability on drying but otherwise retained good viability for at least 3 months.)

Mabrouk, Y., Zourgui, L., Sifi, B. and Belhadj, O. 2007. The potential of *Rhizobium* strains for biological control of *Orobanche crenata*. Biologia (Bratislava) 62(2): 139-143. (Inoculation of peas with *Rhizobium* strains P.SOM and P.1236 caused significant reduction in infestation by *O. crenata*.)

*McNeal, J.R., Kuehl, J.V., Boore, J.L. and de Pamphilis, C.W. 2007. Complete plastid genome sequences suggest strong selection for retention of photosynthetic genes in the parasitic plant genus *Cuscuta*. BMC Plant Biology 7(57) (24 October 2007) (http://www.biomedcentral.com/content/pdf/1471-2229-7-57.pdf) (Describing the full plastid genome sequences of *C. exaltata* and *C. obtusiflora*, along with the nonparasite *Ipomoea*. Despite reduction in genome size, genes for RuBisCo and electron transport in plastids are conserved.)

*McNeal, J.R., Arumugunathan, K., Kuehl, J.V., Boore, J.L. and de Pamphilis, C.W. 2007. Systematics and plastid genome evolution of the cryptically photosynthetic parasitic plant genus *Cuscuta* (Convolvulaceae). BMC Biology 5(55): (13 December 2007) (http://www.biomedcentral.com/content/pdf/1741-7007-5-55.pdf) (Suggesting that the phylogeny of the genus *Cuscuta* is much more complex than is traditionally recognised. Complete loss of photosynthesis is limited to a small group of species found mainly in South America.)

Madulid, D. A. and E. M. G. Agoo. 2007 [available only in 2008]. On the identity of *Rafflesia manillana* Teschem. (Rafflesiaceae). Philippine Scientist 44: 57-70. (A review of the complex issues surrounding the taxonomy and biology of *R. manillana* and related species).

Madulid, D.A., Buot, I. E. and Agoo, E.M.G. 2007. [available only in 2008]. *Rafflesia panchoana* (Rafflesiaceae), a new species from Luzon Island, Philippines. Acta Manilana 55: 43-47. (This species, is similar in size to *R. manillana* but differs by features of the diaphragm, perigone lobe warts, windows on the diaphragm, and bristles on the rim of the annulus).

Malécot, V. and Nickrent, D.L. 2008. Molecular phylogenetic relationships of Olacaceae and related Santalales. Systematic Botany 33: 97-106. (The study, using nuclear and chloroplast genes for all but two of the genera showed the family to be composed of seven clades.)

March, W.A. and Watson, D.M. 2007. Parasites boost productivity: effects of mistletoe on litterfall dynamics in a temperate Australian forest. Oecologia 154(2): 339-347. (Noting the marked contribution of *Amyema miquelii* to increased litter and its ecological consequences.)

Marenco, R.A. and Vieira, G. 2005. Specific leaf area and photosynthetic parameters of tree species in the forest understorey as a function of the microsite light environment in central Amazonia. Journal of Tropical Forest Science 17(2): 265-278. (Including data for the late successional *Minquartia guianensis* (Olacaceae).)

Maruyama, S., Yamada, K. and Tachibana, H. 2007. *Cistanche salsa* extract enhanced IgM production in the human B cell line BALL-1. Journal of Traditional Medicines 24(6): 209-211. (*C. salsa* is used as a medicinal tonic in Japan.)

Maruyama, S., Yamada, K. and Tachibana, H. 2008. *Cistanche salsa* extract induced apoptosis in the

human Burkitt's lymphoma cell line Namalwa. Journal of Traditional Medicines 25(1): 24-27.

Massicotte, H.B., Melville, L.H., Tackaberry, L.E. and Peterson, R.L. 2007. *Pityopus californicus*: structural characteristics of seed and seedling development in a myco-heterotrophic species. Mycorrhiza 17(8): 647-653. (Describing the germination and development of ***P. californicus*** (Monotropaceae) and associated fungi after nearly 2 years burial.)

Mathiasen, R.L. and Daugherty, C.M. 2008. Distribution of red fir and noble fir in Oregon based on dwarf mistletoe host specificity. Northwest Science 82(2): 108-119. (Identification of fir species, red (***A. magnifica***) and noble (***A. procera***), confirmed by their susceptibility or tolerance to *Arceuthobium tsugense* sspp. *mertensianae* and *amabile*.)

Mathiasen, R.L., Daugherty, C.M., Howell, B.E., Melgar, J.C. and Sesnie, S.E. 2007. New morphological measurements of *Psittacanthus angustifolius* and *Psittacanthus pinicola* Loranthaceae). Madroño 54(2): 156-163. (Reporting new measurements and information on host range (mainly *Pinus* spp.) and distribution of these two species in Central America.)

Mathiasen, R.M., Shaw, D.C. Watson, D.M. and Nickrent, D.L. 2008. Mistletoes: pathology, systematics, ecology, and management. Plant Disease 92(7): 988-1006. (An important, detailed, well-illustrated review of mistletoes, their phylogeny, ecology, economic significance, and control. See item above for review.)

Matsuura, H., Ohashi, K., Sasako, H., Tagawa, N., Takano, Y., Ioka, Y., Nabeta, K. and Yoshihara, T. 2008. Germination stimulant from root exudates of ***Vigna unguiculata.*** Plant Growth Regulation 54(1): 31-36. (A stimulant for *Striga gesneriodes* identified as (+)-4-*O*-acetylorobanchol.)

Mauromicale, G., Lo Monaco, A. and Longo, A.M.G. 2008. Effect of branched broomrape (*Orobanche ramosa*) infection on the growth and photosynthesis of tomato. Weed Science 56(4): 574-581. (Shoot dry weight of tomato was reduced by 60-70%. This reduction was disproportionately higher than the weight of the parasite, and was associated with reductions of about 50% in both chlorophyll content and photosynthesis.)

Mauseth, J.D. and Rebman, J.P. 2008. (Re)discovery of a mistletoe infecting the Cardón cactus. Cactus and Succulent Journal 80(2): 85. (*Phoradendron brachystachyum* observed on *Pachycereus pringlei* in Baja California Sur, Mexico.)

Meulebrouck, K., Ameloot, E., van Assche, J.A., Verheyen, K., Hermy, M. and askin, C.C. 2008. Germination ecology of the holoparasite *Cuscuta epithymum*. Seed Science Research 18(1): 25-34. (Concluding that a proportion of seeds remains physically dormant in spring and thus forms a persistent seed bank, reducing the risk of a total reproductive failure in a particular bad year.)

Meyer, A., Rypniewski, W., Celewicz, L., Erdmann, V.A., Voelter, W., Singh, T. P., Genov, N., Barciszewski, J. and Betzel, C. 2007. The mistletoe lectin I - phloretamide structure reveals a new function of plant lectins. Biochemical and Biophysical Research Communications 364(2): 195-200. (Suggesting that the binding of phloretamide to lectin I from European ***V. album*** may be part of a defence whereby the parasite prevents the growth hormone of the host from interfering with its own regulatory system.)

Mohamed, A.H., Omer, M.E.A., Koko, W.S. and Alobaid, Y.M. 2006. Some biological activities of *Hydnora abyssinica*. Journal of Medicinal and Aromatic Plant Sciences 28(2): 224-226. (Confirming antibacterial and antifungal activity in ***H. abyssinica***, in accordance with its traditional use in treatment of diarrhoea.)

Molinero-Ruiz, M.L., Pérez-Vich, B., Pineda-Martos, R. and Melero-Vara, J.M. 2008. Indigenous highly virulent accessions of the sunflower root parasitic weed *Orobanche cumana.* Weed Research (Oxford) 48(2): 169-178. (Showing that some old samples of ***O. cumana*** seed included some race F, suggesting this is indigenous to Spain and not introduced.)

Moore, J.H., Fletcher, G.E. and Rogerson, A. 1996. Golden dodder in Western Australia - its status and eradication issues. In: Shepherd, R.C.H. (ed.) Proceedings of the 11th Australian Weeds Conference, Melbourne, Australia, 30 September - 3 October, 1996 1996: 497-500. (Infestations of *Cuscuta campestris* recorded near coast in WA.)

Mor, A., Mayer, A.M. and Levine, A. 2008. Possible peroxidase functions in the interaction between the parasitic plant, *Orobanche aegyptiaca*, and its host, *Arabidopsis thaliana*. Weed Biology and Management 8(1): 1-10. (Proposing that peroxidases may generate extracellular reactive oxygen species (ROS) which loosen the cell wall of the host to facilitate penetration. Or, the ROS facilitates root elongation of the parasite.)

Mu Ping, Gao Xue, Jia ZhongJian and Zheng RongLiang 2008. Natural antioxidant pedicularioside G inhibits angiogenesis and tumourigenesis *in vitro* and *in vivo*. Basic and Clinical Pharmacology and Toxicology 102(1): 30-34. (A phenylpropanoid glycosides isolated from *Pedicularis striata* has distinct antioxidant activity.)

Muhanguzi, H.D.R., Obua, J. and Oryem-Origa, H. 2007. The effect of human disturbance on tree species composition and demographic structure in

Kalinzu Forest Reserve, Uganda. African Journal of Ecology 45(Suppl.3): 2-10. (Including *Strombosia scheffleri* (Olacaceae).)

Muir, K., Byrne, M., Barbour, E., Cox, M.C. and Fox, J.E.D. 2007. High levels of outcrossing in a family trial of Western Australian sandalwood (*Santalum spicatum*). Silvae Genetica 56(5): 222-230. (*S. spicatum* is generally out-crossing but can be selfed and progeny show no disadvantage from in-breeding.)

Mulliken, T. and Crofton, P. 2008. Review of the status, harvest, trade and management of seven Asian CITES-listed medicinal and aromatic plant species. BfN - Skripten (Bundesamt fur Naturschutz) 227, 142 pp. (Listing *Cistanche deserticola* among 7 Asian CITES-listed medicinal and aromatic plant species.)

Mulliken, T. and Schippmann, U. 2007. CITES medicinal plant species in Asia - treasured past, threatened future? Medicinal Plant Conservation 13: 23-31. (Including comment on the status, use, trade and trade controls for *Cistanche deserticola*.)

Nadal, S., Moreno, M.T. and Román, B. 2008. Control of *Orobanche crenata* in *Vicia narbonensis* by glyphosate. Crop Protection 27(3/5): 873-876. (Spraying glyphosate 35-67 g/ha twice, at tubercle stage and 2 weeks later suppressed *O. crenata* and increased yields.)

Nakajima, T., Hasegawa, Y. and Koga, Y. 2008. The effect of santalol on the sleep-wakefulness cycle in healthy subjects. Aroma Research 9(1): 36-41. (Santalol, in oil from *Santalum album*, contributed to improved sleep.)

N'guessan, J.D., Coulibaly, A., Ramanou, A.A., Okou, O.C., Djaman, A.J. and Guédé-Guina, F. 2007. Antibacterial activity of *Thonningia sanguinea* against some multi-drug resistant strains of *Salmonella enterica*. African Health Sciences 7(3): 155-158. (Concluding that an aqueous extract of *T. sanguinea* flowers can control salmonellosis, including typhoid fever caused by resistant strains of *S. typhi*; also *S. hadar*, a resistant strain emerging in Ivory Coast.)

Nickrent, D. L. 2007. Cytinaceae are sister to Muntingiaceae (Malvales). *Taxon* 56. (Molecular phylogenetic methods were used to show that Cytinaceae were sister to Muntingiaceae and morphological characters supporting this placement were discussed.)

Nickrent, D.L. 2008. Parasitic Plants. In: McGraw-Hill Yearbook of Science & Technology: 251-253. (A general summary of recent molecular phylogenetic and molecular evolutionary studies on parasitic flowering plants.)

Niemelä, M., Markkola, A. and Mutikainen, P. 2008. Modification of competition between two grass species by a hemiparasitic plant and simulated grazing. Basic and Applied Ecology 9: 117-125. (In a pot experiment in Finland, both infection by *Odontites litoralis* and simulated grazing tended to favour the less competitive host *Puccinellia phryganodes* over *Agrostis stolonifera*.)

Nnamani, C.V. and Agwu, C.O.C. 2007. Pollen analysis of honey samples from 13 local government areas of Ebonyi State, Nigeria. Bio-Research 5(1): 184-188. (*Olax viridis* among the predominant sources of pollen.)

Ofem, O.E., Eno, A.E., Imoru, J., Nkanu, E., Unoh, F. and Ibu, J.O. 2007. Effect of crude aqueous leaf extract of *Viscum album* (mistletoe) in hypertensive rats. Indian Journal of Pharmacology 39(1): 15-19. (Noting antihypertensive effects without alteration in heart rate.)

Oliva, J. and Colinas, C. 2007. Decline of silver fir (*Abies alba* Mill.) stands in the Spanish Pyrenees: role of management, historic dynamics and pathogens. Forest Ecology and Management 252(1/3): 84-97. (The incidence of *Viscum. album* was 14%, and positively related to defoliation and chlorosis.)

Osadebe Patience, O., Abana Chdubem, V. and Uzochukwu Ikemefuna, C. 2008. Bioassay-guided isolation-targeted studies on the crude methanol extract and fractions of the leaves of *Loranthus micranthus* Linn. parasitic on *Azadirachta indica* A. Juss. In: Singh, V.K. and Govil, J.N. (eds) Phytopharmacology and therapeutic values III: 131-136. (Methanol extracts of *L. micranthus* (=*Ileostylus micranthus*) exhibited significant anti-hyperglycaemic activity in diabetic rats.)

Ouattara, B., Coulibaly, A., Kra, A.M. and Guédé-Guina, F. 2008. Assessment of antifungal activity of an African medicinal herb *Thonningia sanguinea* against *Cryptococcus neoformans*. World Applied Sciences Journal 3(2): 191-194. (See item below.)

Ouattara, B., Kra, A.M., Coulibaly, A. and Guede-Guina, F. 2007. (Efficiency of an ethanol extract of *Thonningia sanguinea* against *Cryptococcus neoformans*.) (in French) Cahiers d'Études et de Recherches Francophones/Santé 17(4): 219-222. (Confirming significant activity against the eumycete fungus *Cryptococcus neoformans*, implicated in certain HIV/AIDS cases.)

Ouedraogo, M., Carreyre, H., Vandebrouck, C., Bescond, J., Raymond, G., Guissou, I.P., Cognard, C., Becq, F., Potreau, D., Cousson, A., Marrot, J. and Coustard, J.M. 2007. Structure elucidation of a dihydropyranone from *Tapinanthus dodoneifolius*. Journal of Natural Products 70(12): 2006-2009. (The new dihydropyranone showed a relaxing effect on preconstricted rat aortic rings.)

Păcureanu-Joita, M., Vrânceanu, A.V. and Stanciu, D. (50 Years of sunflower breeding at Fundulea.) (in Romanian) Analele Institutului National de Cercetare-Dezvoltare Agricolă Fundulea 75: 173-194. (Referring to the importance of *Orobanche cumana* and the successes in breeding for resistance to it.)

Paduch, R., Matysik, G., Wójciak-Kosior, M. and Niedziela, P. 2007. The biological activity of medicinal plant extract.In: Govil, J.N., Singh, V.K. and Siddiqui, N.T. (eds) Natural products II: 127-144. (Describing the effects of Naran N and Naran S, based on *Calendula officinalis, Plantago lanceolata, Chamomilla recutita* and *Euphrasia rostkoviana* on diabetes, leg ulcers etc.)

Papchenkov, V.G. 2007. Floristic records in the Middle Volga basin. Botanicheskiĭ Zhurnal, 92(10): 1580-1587. (Noting new records for *Melampyrum solstitiale* and '*Otites'* (?*Odontites*?) *hellman*.)

Park IlKwon, Kim JunHeon, Lee YeonSuk and Shin SangChul 2008. *In vivo* fungicidal activity of medicinal plant extracts against six phytopathogenic fungi. International Journal of Pest Management 54(1): 63-68. (*Santalum album* showed potent fungicidal activity against *Blumeria graminis*.)

Park JeongMi, Manen, J.F. and Schneeweiss, G.M. 2007. Horizontal gene transfer of a plastid gene in the non-photosynthetic flowering plants *Orobanche* and *Phelipanche* (Orobanchaceae). Molecular Phylogenetics and Evolution 43: 974-985. (*Phelipanche* harbors a second copy of the plastid gene *rps2* which appears to be from *Orobanche*. The transfer of this gene through a common host is postulated.)

Patto, M.C.V., Díaz-Ruiz, R., Satovic, Z., Román, B., Pujadas-Salvà, A.J. and Rubiales, D. 2008. Genetic diversity of Moroccan populations of *Orobanche foetida*: evolving from parasitising wild hosts to crop plants. Weed Research (Oxford) 48(2): 179-186. (A population of *O. foetida* attacking *Vicia sativa* in Morocco was genetically most related to others attacking *Scorpiurus muricatus*. The most genetically distinct population was one attacking *Ornithopus sativus*.)

Pawar, B.H., Mahalle, N.S. , Raghuvanshi, F.C. , Dehvade, S.K. and Arsad, S.S. 2006. Effect of ultraviolet radiation on rate of photosynthesis. Annals of Plant Physiology 20(1): 11-13. (Exposure to laser light increased chlorophyll content in *Santalum album*.)

Pennings, S.C. and Simpson, J.C. 2008. Like herbivores, parasitic plants are limited by host nitrogen content. Plant Ecology 196(2): 245-250. (A study involving *Cuscuta salina* parasitising *Salicornia* and *Jaumea*, with and without added N.)

Pérez-de-Luque, A., Moreno, M.T. and Rubiales, D. 2008. Host plant resistance against broomrapes (*Orobanche* spp.): defence reactions and mechanisms of resistance. Annals of Applied Biology 152(2): 131-141. (An in-depth review of resistance mechanisms and the histochemical techniques involved in their study.)

Picerno, P., Mencherini, T., Rastrelli, L., Piccinelli, A. and Aquino, R. 2008. Isoprenoid glycosides from *Liriosma ovata*. Journal of Natural Products 71(2): 265-268. (Extracts from *L. ovata* (Olacaceae) had significant topical anti-inflammatory activity.)

Piotto, D. 2007. Growth of native tree species planted in open pasture, young secondary forest and mature forest in humid tropical Costa Rica. Journal of Tropical Forest Science 19(2): 92-102. (*Minquartia guianensis* (Olacaceae) among the 24 species studied.)

Pujadas Salvá, A.J., Plaza Arregui, L., Sánchez Gullón, E., Triano Muñoz, E., Lõpez Martïnez, M., Burgarella, C., Rubiales Olmedo, D., Román del Castillo, B., Reyes Sepúlveda, E. and Ivorra Jiménez, A. 2008. (The genus *Orobanche* (Orobanchaceae) in Andalusia.) (in Spanish) Acta Botanica Malacitana 32: 91-126. (Presenting a critical review, distribution data and key for 31 taxa.)

Qasem, J.R. and Foy, C.L. 2007. Screening studies on the host range of branched broomrape (*Orobanche ramosa*). Journal of Horticultural Science and Biotechnology 82(6): 885-892. (Pot studies with a wide range of crop and weed species, leading to some suggestions for potential trap and catch crops.)

*Qiu YunPing, Chen MinJun, Su MingMing, Xie GuoXiang, Li Xin, Zhou MingMei, Zhao AiHua, Jiang Jian and Jia Wei 2008. Metabolic profiling reveals therapeutic effects of *Herba Cistanches* in an animal model of hydrocortisone-induced 'kidney-deficiency syndrome'. Chinese Medicine 3(3) 3 (10 March 2008) (http://www.cmjournal.org/content/3/1/3/abstract) (The extract, presumably from *Cistanche deserticola*, caused systemic recovery from hydrocortisone-induced metabolic perturbation in rats.)

Rajan Bawa, Sharma, S.S. and Sankhyan, H.P. 2007. Biological control of *Lantana* through *Cuscuta*. Indian Journal of Forestry 30(1): 87-91. (Describing the 'standardisation' of a method to suppress *Lantana* with *Cuscuta* (unspecified).)

Rajasugunasekar, D., Mohan, V. and Kunhikannan, C. 2007. First report of plant parasite *Helicanthus elastica* (Ders.) Dans. in *Ailanthus* plantation in Tamil Nadu. Indian Forester 133(9): 1277-1280. (*Helicanthes elastica* (Loranthaceae) seen severely affecting the growth and survival of *A. excelsa*.)

Ramula, S. 2008. Responses to the timing of damage in an annual herb: fitness components versus population performance. Basic and Applied Ecology 9(3): 233-242. (Reporting studies with *Melampyrum pratense*.)

Rasthra Vardhana 2007. Plant's havoc by *Cuscuta* spp. in district Meerut U.P. India. Plant Archives 7(2): 917-918. (*C. reflexa* recorded on 102 host species, and *Cuscuta capitata, Cuscuta chinensis* and *Cuscuta hyalina* recorded on 1, 2 and 5 hosts respectively.)

Rasthra Vardhana 2007. Plant's havoc by *Cuscuta* spp. in district Ghaziabad U.P. India. 921-922. (*C. reflexa* recorded on 108 host species, and *Cuscuta capitata, Cuscuta chinensis* and *Cuscuta hyalina* recorded on 1, 3 and 5 hosts respectively.)

Remadevi, O.K., Srinivasa, Y.B. and Raja Muthukrishnan 2007. Survey study on sucking pests of sandalwood (*Santalum album* Linn.) and their natural enemies and seasonal fluctuation of *Cardiococcus bivalvata* and its parasitoids.In: Tandon, P.L., Jalali, S.K, Poorani, J., Ramanujam, B., Bakthavatsalam, N. and Rabindra, R.J. (eds) Journal of Biological Control 21(Special): 59-64.

Rist, L., Shaanker, R.U., Milner-Gulland, E.J. and Ghazoul, J. 2008. Managing mistletoes: the value of local practices for a non-timber forest resource. Forest Ecology and Management 255(5/6): 1684-1691. (Discussing the difficulties of controlling *Taxillus tomentosus* on *Phyllanthus emblica* and *P. indofischer* which are exploited in India for their fruit.)

Robertson, A.W., Ladley, J.J. and Kelly, D. 2008. Does height off the ground affect bird visitation and fruit set in the pollen-limited mistletoe *Peraxilla tetrapetala* (Loranthaceae)? Biotropica: 40(1): 122-126. (No. In New Zealand, the bellbird (*Anthornis melanura*) visits flowers at all levels.)

Robinson, D.C.E. and Geils, B.W. 2006. Modelling dwarf mistletoe at three scales: life history, ballistics and contagion. Ecological Modelling 199(1): 23-38. (The model is claimed to provide a practical tool for assessing the long-term, cumulative effects of disease and management in *Arceuthobium*-infested forest stands.)

Rodenburg, J., Bastiaans, L., Schapendonk, A.H.C.M., van der Putten, P.E.L., van Ast, A., Dingemanse, N.J. and Haussmann, B.I.G. 2008. CO_2-assimilation and chlorophyll fluorescence as indirect selection criteria for host tolerance against *Striga*. Euphytica 160(1): 75-87. (Suggesting that selection for tolerance to *Striga* could be based on measurements of photosynthesis.)

Rogers, Z.S., Malécot, V. and Sikes, K.G. 2006. A synoptic revision of *Olax* L. (Olacaceae) in Madagascar and the Comoro Islands. Adansonia 28(1): 71-100. (Describing 8 species of *Olax*, six of which are endemic to Madagascar including three newly described: *O. antsiranensis, O. capuronii* and *O. mayottensis*.)

*Román, B., Hernández, R., Pujadas-Salvá, A.J., Cubero, J.I., Rubiales, D. and Satovic, Z. 2007. Genetic diversity in two variants of *Orobanche gracilis* Sm. [var. *gracilis* and var. *deludens* (Beck) A. Pujadas] (Orobanchaceae) from different regions of Spain. EJB, Electronic Journal of Biotechnology 10(2): 221-229. (http://www.bioline.org.br/request?ej07022)

Roxburgh, L. and Nicolson, S.W. 2008. Differential dispersal and survival of an African mistletoe: does host size matter? Plant Ecology 195(1): 21-31. (Greater abundance of *Phragmanthera dschallensis* on taller *Acacia sieberana* trees in Zambia is mainly due to the preferential perching habits of the seed-dispersing birds.)

Saadoun, I., Hameed, K.M., Al-Momani, F. and Ababneh, Q. 2008. Effect of three *Orobanche* spp. extracts on some local phytopathogens, *Agrobacterium* and *Erwinia.* Turkish Journal of Biology 32(2): 113-117. (In comparisons of *O. cernua, O. crenata,* and *O. aegyptiaca* for their activity on the 2 pathogens, *C. cernua* was most active, and *O. aegyptiaca* the least.)

Sanjaya, Bagyalakshmi Muthan, Rathore, T.S. and Rai, V.R. 2006. Factors influencing in vivo and in vitro micrografting of sandalwood (*Santalum album* L.): an endangered tree species. Journal of Forest Research 11(3): 147-151.

Sanjaya, Bagyalakshmi Muthan, Vittal, T.S.R.A. and Rai, R. 2006. Micropropagation of an endangered Indian sandalwood (*Santalum album* L.). Journal of Forest Research 11(3): 203-209. (Media are described in which multiple shoots were induced from nodal shoot segments and rooting stimulated before planting out successfully in the field.)

*Schneeweiss, G.M. 2008. List of actual and potential broomrape pest species. (http://www.botanik.univie.ac.at/plantchorology/PestSpeciesOrobanche.pdf) **(**A detailed up-to-date appraisal of the importance and distribution of *Orobanche* spp. in Europe, Near East and N. Africa, prepared in conjunction with the COST 849 project. It provides scores (1-4) for importance in each crop, for 7 'major' species (including *O. foetida*), and 4 'minor' species (causing no higher than level 1 damage). Also listing 11 further 'potential' problem species which need monitoring.)

Scholes, J.D. and Press, M.C. 2008. *Striga* infestation of cereal crops - an unsolved problem in resource limited agriculture. In: Greenland, A. and Leach, A. (eds) Current Opinion in Plant Biology 11(2): 180-

186. (Reviewing recent developments in basic research.)
Schoolmaster, D.R.Jr. 2008. Recruitment limitation modifies the net effects of shared enemies on competitively inferior plants. Journal of Ecology (Oxford) 96(1): 114-121. (Including some reference to parasitic plants.)
Sharma, R.C. and Sanjeev Sharma 2006. Diseases of poplar in India and their management. In: Verma, K.S., Khurana, D.K. and Christersson, L. (eds) Short rotation forestry for industrial and rural development. Proceedings of the IUFRO-ISTS-UHF International Conference on World Perspective on Short Rotation Forestry for Industrial and Rural Development, Nauni, Solan, India, 7-13 September 2003: 364-370. (Attack by *Viscum album* is serious in the hills.)
Shaw, D.C., Huso, M. and Bruner, H. 2008. Basal area growth impacts of dwarf mistletoe on western hemlock in an old-growth forest. Canadian Journal of Forest Research 38(3): 576-583. (Growth of trees over 13 years was not affected by light or moderate infestation by *Arceuthobium tsugense* but severe infection caused 16-46% reduction in growth.)
Shekhawat, U.K.S., Ganapathi, T.R., Srinivas, L., Bapat, V.A. and Rathore, T.S. 2008. *Agrobacterium*-mediated genetic transformation of embryogenic cell suspension cultures of *Santalum album* L. Plant Cell, Tissue and Organ Culture 92(3): 261-271.
Shishkova, S., Rost, T.L. and Dubrovsky, J.G. 2008. Determinate root growth and meristem maintenance in angiosperms. Annals of Botany 101(3): 319-340. (Including a section on parasitic species, mentioning work on *Striga, Tryphysaria, Cuscuta* and *Pholisma* (Lennoaceae).)
Shrikande, B.K., Tailang, M., Goupale, D.C. and Gupta, V.M. 2007. Development and evaluation of cold stable antiseptic cream containing essential oils of Sandal wood and Khas. Hamdard Medicus 50(1): 59-62. (Essential oils of *Santalum album* included for their antiseptic properties.)
Shukla, A.N. and Singh, Y.P. 2007. Status of dwarf mistletoe (*Arceuthobium minutissimum* Hook. f.) on Blue pine in Jammu & Kashmir. Indian Forester 133(9): 1179-1184. (A survey showing increased infection in older trees.)
Siami, K., Vazan, S., Jamshidi, S. and Alimohammadi, R. 2007. (Using of crops as trap for *Orobanche aegyptiaca* management in tomato in greenhouse conditions.) (in Persian) Journal of New Agricultural Science 3(8): 37-44. (*Trifolium alexandrinum,* flax and sorghum were most effective trap crops for *O. aegyptiaca*. Soyabean was among the least active.)
Sileshi, G.W., Kuntashula, E., Matakala, P. and Nkunika, P.O. 2008. Farmers' perceptions of tree mortality, pests and pest management practices in agroforestry in Malawi, Mozambique and Zambia. Agroforestry Systems 72(2): 87-101. (Noting that farmers regard insect and *Striga asiatica* as more serious constraints than crop diseases.)
Singh, B.B., Olufajo, O.O., Ishiyaku, M.F., Adeleke, R.A., Ajeigbe, H.A. and Mohammed, S.G. 2007. Registration of 'NGVU-05-24' cowpea. Journal of Plant Registrations 1(1): 48-49. (Previously tested as IT93K-452-1, originating from parents IT86D-782 and IT90K-76 this new 60-day variety has multiple resistance to a range of diseases and *Striga gesnerioides*.)
Siqueira, I.R., Fochesatto, C., Torres, I.L.S., da Silva, A.L., Nunes, D.S., Elisabetsky, E. and Netto, C.A. Antioxidant activities of *Ptychopetalum olacoides* ("muirapuama") in mice brain. Phytomedicine 14(11): 763-769. (Confirming antioxidant activity in *P. olacoides* (Olacaceae), used by Amazonian peoples to treat nervous conditions.)
Soberón, J.R., Sgariglia, M.A., Sampietro, D.A., Quiroga, E.N. and Vattuone, M.A. 2007. (Isolation, identification and determination of the antioxidant activity of a glycoflavonoid from *Tripodanthus acutifolius* (Ruiz & Pavón) Van Tieghem.) (in Spanish) In: Martinez, J.L. and Garcia, J.M.P. (eds) Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 6(5): 276-277. (Evaluating the anti-oxidant content in *T. acutifolius* (*Loranthaceae*).)
Somsub, W., Kongkachuichai, R., Sungpuag, P. and Charoensiri, R. 2008. Effects of three conventional cooking methods on vitamin C, tannin, myo-inositol phosphates contents in selected Thai vegetables. Journal of Food Composition and Analysis 21(2): 187-197. (Stir-fried *Melientha suavis* (Opiliaceae) is an excellent source of vitamin C.)
Stanton, S. 2007. Effects of dwarf mistletoe on climate response of mature ponderosa pine trees. Tree-Ring Research 63(2): 69-80. (Results suggest that *Arceuthobium*-infected trees are more sensitive to climatic factors than uninfected trees and may be useful for dendroclimatic analyses.)
Suetsugu, K., Kawakita A., and Kato, M. 2008. Host range and selectivity of the hemiparasitic plant *Thesium chinense* (Santalaceae). Annals of Botany 102: 40-55. (*T. chinense* is shown to have a wide host range attaching to 22 spp. in 11 families, but with a possible preference for *Lespedeza juncea* and *Eragrostis curvula.*)
Suffredini, I.B., Paciencia, M.L.B., Frana, S.A., Varella, A.D. and Younes, R.N. 2007. *In vitro* breast cancer cell lethality of Brazilian plant extracts. Pharmazie 62(10): 798-800. (A member of the Olacaceae (not specified in abstract) among only 11 of 351 species screened to show activity.)

Sugimoto, Y. and Ueyama, T. 2008. Production of (+)-5-deoxystrigol by *Lotus japonicus* root culture. Phytochemistry 69(1): 212-217.

Sujetovienė, G. and Stakėnas, V. 2007. Changes in understorey vegetation of Scots pine stands under the decreased impact of acidifying and eutrophying pollutants. Baltic Forestry 13(2): 190-196. (*Melampyrum pratense* among the understory species which increased in occurrence as pollution decreased.)

Sun ZhongKui 2008. Biosynthesis of germination stimulants of parasitic weeds *Striga* and *Orobanche*. Thesis. Wageningen, Netherlands: Wageningen University. 115 pp. (Discussing the cloning and characterization of a maize carotenoid cleavage dioxygenase gene (*ZmCCD1*), and its relevance to germination stimulants in *Arabidopsis* and rice.)

Suzuki, K., Dohzono, I. and Hiei, K. 2007. Evolution of pollinator generalization in bumblebee-pollinated plants. Plant Species Biology 22(3): 141-159. (Showing that 3 bumblebee species are equally effective pollinators of *Melampyrum roseum*, but lead to self-pollination; seed production is then reduced by abortion of selfed embryos.)

Szymańska, R. and Kruk, J. 2008. Tocopherol content and isomers' composition in selected plant species. Plant Physiology and Biochemistry 46(1): 29-33. (*Cuscuta epithymum* and *C. japonica* both shown to contain γ-tocopherol and δ-tocopherol. *C. japonica* was exceptional by the complete absence of α-tocopherol.)

Tájek, P. 2007. (Flora and vegetation of the prepared Nature Reserve Rašeliniště u myslivny.) (in Czech) Erica (Plzeň)14: 39-56. (A list of 'most valuable' species includes *Pedicularis sylvatica* and *Thesium alpinum*.)

Tank, D.C. and Olmstead, R.G. 2008. From annuals to perennials: phylogeny of subtribe Castillejinae (Orobanchaceae). American Journal of Botany 95(5): 608-625. (Molecular phylogenetic analysis confirms existing genera and suggests perenniality arose just once within the group.)

Tamokou, J.D., Kuiate, J.R., Njateng, G.S.S., Simo, D.J.M., Njouendou, A.J., Tane, P. and Zollo, P.H.A. 2008. Antimicrobial activity of dichloromethane-methanol (1:1 v/v) extract from the stem bark of *Coula edulis* Bail. (Olacaceae). Research Journal of Microbiology 3(6): 414-422. (Confirming antibacterial and anti-fungal activities which justify the traditional use of this plant in Cameroon for the treatment of infectious diseases.)

Tang Ya, Xie JiaSui and Sun Hui 2007. Pollination ecology of *Pedicularis muscoides* H. L. Li subsp. *himalayca* Yamazaki from alpine areas of Western Sichuan, China. Arctic, Antarctic, and Alpine Research 39(3): 481-487. (Exclusively pollinated by queens of 4 bumblebee species over a very short flowering period.).

Tariq Husain and Priyanka Agnihotri 2007. Taxonomic notes on *Pedicularis* L. series Robustae Prain (Scrophulariaceae). Journal of Economic and Taxonomic Botany 31(3): 696-700. (Referring to *P. robusta, P. elwesii, P. nepalensis* and *P. daltoni*.)

Tassin, J., Barré, N. and Bouvet, J.M. 2008. Effect of ingestion by *Drepanoptila holosericea* (Columbidae) on the seed germination of *Santalum austrocaledonicum* (Santalaceae). Journal of Tropical Ecology 24(2): 215-218. (Germination was enhanced following passage through the bird *D. holosericea*.)

Thomson, J.A. 2008. The role of biotechnology for agricultural sustainability in Africa. In: Pollock, C., Pretty, J., Crute, I., Leaver, C. and Dalton, H. (eds) Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 363(1492): 905-913. (Referring to use of herbicide-resistant maize for *Striga* control.)

Tian Jiyu and Chen Jianzong 2003. The effects of desertliving cistanche [*Cistanche deserticola*] on the apoptosis of dopaminergic neurons induced by 1-methyl-4-phenylpyridinium (MPP^{1}) Chinese Journal of Information on Traditional Chinese Medicine 10(11): 19-21.

Togola, A., Inngjerdingen, M., Diallo, D., Barsett, H., Rolstad, B., Michaelsen, T.E. and Paulsen, B.S. 2008. Polysaccharides with complement fixing and macrophage stimulation activity from *Opilia celtidifolia*, isolation and partial characterisation. Journal of Ethnopharmacology 115(3): 423-431. (The leaves of *O. celtidifola* a medicinal plant in Mali, contain polysaccharides of pectic type that have both complement fixing and macrophage stimulating activity.)

Tsai TungHu, Wang Guei and Lin LieChwen 2008. Vasorelaxing alkaloids and flavonoids from *Cassytha filiformis*. Journal of Natural Products 71(2): 289-291.

Tusenius, K.J., Spoek, A.M. and van Hattum, J. 2005. Exploratory study on the effects of treatment with two mistletoe preparations on chronic hepatitis C: biochemical and quality of life improvement. Arzneimittel Forschung 55(12): 749-753. (Results suggest an improvement of liver inflammation and thus possibly reduction of the long term complications, viz cirrhosis and liver cancer. *V.album* preparations 'have the advantage of easy administration and low cost.')

*Umehara, M., Hanada, A., Yoshida, S., Akiyama, K., Arite, T., Takeda-Kamiya, N., Magome, H., Kamiya, Y., Shirasu, K., Yoneyama, K., Kyozuka, J. and Yamaguchi, S. 2008. Inhibition of shoot branching by new terpenoid plant hormones. Nature.

http://dx.doi.org/10.1038/nature07272 (GR24 is shown to reduce branching in dwarf (*d*) rice. The *d*– type rice is also shown to be strigolactone-deficient, stimulating very little *Striga* germination. See also literature highlight above.)

van Auken, O.W., Grunstra, M. and Brown, S.C. 2007. Composition and structure of a West Texas salt marsh. Madroño 54(2): 138-147. (Listing *Agalinis calycina* among minor components of the flora.)

van Mourick, T.A., Bianchi, F.J.J.A., van der Werf, W. and Stomph, T.J. 2008. Long-term management of *Striga hermonthica*: strategy evaluation with a spatio-temporal model. Weed Research 48: 329-339. (Proposing that the model can be used in a participatory learning context with farmers. Also noting that weeding and inter-cropping milllet with sesame or cowpea reduced the *Striga* seedbank in the long term, but rotation with trap crops did not.)

Vanlauwe, B., Kanampiu, F., Odhiambo, G.D., de Groote, H., Wadhams, L.J. and Khan, Z. R. 2008. Integrated management of *Striga hermonthica*, stemborers, and declining soil fertility in western Kenya. Field Crops Research 107(2): 102-115. (In a six-season experiment comparing herbicide-resistant maize (with imazapyr-coated seed) with a local variety, each in conjunction with intercropping with *Desmodium uncinatum* or *Phaseolus* bean, or rotation with soyabean or *Crotalaria ochroleuca*, best results were achieved with IR maize plus *Desmodium* followed by local maize plus *Desmodium*.)

Vidal-Russell, R. and Nickrent, D.L. 2008. Evolutionary relationships in the showy mistletoe family (Loranthaceae). American Journal of Botany 95: 1-16. (Combining molecular phylogenetic and fossil studies to confirm five origins of aerial parasitism, first in Misodendraceae ca. 80 million years ago (mya), then in Viscaceae (72 mya), 'Eremolepidaceae' (53 mya), tribe Amphorogyneae in Santalaceae (46 mya), and Loranthaceae (28 mya). In all except Misodendraceae, it appears aerial parasites evolved from ancestors that were polymorphic for either root or stem parasitism - 'amphiphagous'

Vidal-Russell, R. and Nickrent,D.L. 2007. The biogeographic history of Loranthaceae. Darwiniana 45: 52-54. (Divergence Vicariance Analysis (DIVA) was applied to a molecular data set for Loranthaceae and various hypotheses, including those of Barlow (1983), are discussed.)

Vidal-Russell, R. and D. L. Nickrent. 2007. A molecular phylogeny of the feathery mistletoe *Misodendrum*. Systematic Botany 32: 560-568. (Two chloroplast genes and morphological characters were analyzed for nearly all species in the genus and the resulting trees generally agreed with the existing taxonomic classification).

Vidal-Russell, R. and D. L. Nickrent. 2008. The first mistletoes: origins of aerial parasitism in Santalales. Molecular Phylogenetics and Evolution 47: 523-527. (Two chloroplast genes and morphological characters were analyzed for nearly all species in the genus and the resulting trees generally agreed with the existing taxonomic classification.)

Vidal-Russell, R. and Nickrent, D.L. 2008. The first mistletoes: origins of aerial parasitism in Santalales. Molecular Phylogenetics and Evolution 47: 523-527. (Nuclear and chloroplast genes for 39 taxa in Santalales, along with fossil data obtained from the literature, were subjected to penalized likelihood and Bayesian relaxed molecular clock analyses. This study confirmed that aerial parasitism arose five times independently in the order and placed approximate dates on those nodes.)

Vidal-Russell, R. and Nickrent D. L. 2008. Evolutionary relationships in the showy mistletoe family (Loranthaceae). American Journal of Botany 95: 1015-1029. (60 of the 73 genera of Loranthaceae were analyzed using chloroplast and nuclear genes. The molecular phylogeny confirms that *Nuytsia* is sister to the remaining genera and that aerial parasitism arose once in the family).

Vinogradova, T.N. 2008. Some peculiarities of propagation biology of *Neottia asiatica* (Orchidaceae) from Petropavlovsk-Kamchatsky environs. Botanicheskiĭ Zhurnal 93(4): 541-552. (*N. asiatica* spreads by seed (over 4000 per shoot) and root suckers. It is an obligate mycosymbiotroph, but mycorrhiza infection is not consistent.)

Wagner, M.L., Ricco, R.A., Ranea, F.G. and Gurni, A.A. 2007. (Comparative study of phenolic compound in different population of *Phoradendron liga* (Gill.) Eichl. - Viscaceae from Argentina.) (in Spanish) In: Martinez, J.L. and Garcia, J. (eds) Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas 6(5): 301-302. (*P. liga* is common in Argentina and is used traditionally as a hypertensive agent. Studies showed levels of flavonoids differed according to locality.)

Walker, R.E., Fecko, R.M., Frederick, W.B., Johnson, D.W. and Miller, W.W. 2007. Forest health impacts of bark beetles, dwarf mistletoe, and blister rust in a Lake Tahoe Basin mixed conifer stand. Western North American Naturalist 67(4): 562-571. (Noting light infestations *Arceuthobium abietinum* in white fir and *A. campylopodum* in Jeffrey pine, less damaging than the bark beetle infestations.)

Watson, W.T. and Martinez-Trinidad, T. 2006. Strategies and treatments for leafy mistletoe (*Phoradendron tomentosum* (DC.) Engelm ex. Gray) suppression on cedar elm (*Ulmus crassifolia* Nutt.).

Arboriculture & Urban Forestry 32(6): 265-270. (Regrowth of *P. tomentosum* controlled by removing the branch on which it grew, removing the parasite and caulking over the point of removal, or applying naphthalene acetic acid and black paint after removal.)

Wilkinson, K.M. 2007. Propagation protocol for 'iliahi (*Santalum freycinetianum*). Native Plants Journal 8(3): 248-251. (Suggestions made for successful propagation of Hawaaian sandalwood.)

Xia, J., Sun, S.G. and Guo, Y.H. 2007. Honeybees enhance reproduction without affecting the outcrossing rate in endemic *Pedicularis densispica* (Orobanchaceae). Plant Biology 9(6): 713-719. (Introduction of honeybees significantly enhanced reproductive success in *P. densispica* in SW China.)

Xiaoqiong Qin, Seung Hwan Yang, Kepsel, A.C., Schwartz, S.H. and Zeevaart, J.A.D. 2008. Evidence for abscisic acid biosynthesis in *Cuscuta reflexa*, a parasitic plant lacking neoxanthin. Plant Physiology 147: 816-822. (Confirming that although *C. reflexa* lacks the usual precursor for ABA synthesis, it is able to synthesise it from alternative precursors.)

Xie XiaoNan, Yoneyama, K., Kusumoto, D., Yamada, Y., Takeuchi, Y., Sugimoto, Y. and Yoneyama, K. 2008. Sorgomol, germination stimulant for root parasitic plants, produced by *Sorghum bicolor*. Tetrahedron Letters 49(13): 2066-2068. (Describing a new strigolactone, more active on *Striga* than on *Orobanche*. Possibly a precursor in the biosynthesis of sorgolactone.)

Xie XiaoNan, Yoneyama, K., Kusumoto, D., Yamada, Y., Yokota, T., Takeuchi, Y. and Yoneyama, K. 2008. Isolation and identification of alectrol as (+)-orobanchyl acetate, a germination stimulant for root parasitic plants. Phytochemistry 69(2): 427-431. (Describing the purification of (+)-orobanchyl acetate from exudates of *Trifolium pratense* and its presence also in those from cowpea and soyabean.)

Winkler, K., Jäger, S., Leneweit, G. and Schubert, R. 2008. Interactions of viscotoxins with vesicles of genuine plant membranes. Planta Medica: 74(2): 163-167.

Yang ChongJun, Zhang XiuSheng and Zhang ZhiKun 2007. Effect of acetylcholine on seed germination and endogenous IAA and ABA contents of *Cistanche tubulosa*. Plant Physiology Communications 43(2): 295-297. (Germination of *C. tubulosa* accelerated by1.0-3.0 mmol/litre acetylcholine.)

*Yatskievych, G., Jiménez, C. and Luis, J. 2008 A new genus of holoparasitic Orobanchaceae endemic to Guerrero, Mexico. Presented at Botany without Borders, July 26 – 30, 2008, University of British Columbia, Vancouver BC http://www.botanyconference.org/engine/search/index.php?func=detail&aid=594) (This new achlorophyllous species is parasitic on the roots of the tree *Hedyosmum mexicanum* (Chloranthaceae), distinguished from other Orobanchaceae by 1) strongly 5-ribbed ovary and fruit; 2) production of 5 parietal placentae; 3) unusual anthers in which the pollen sacs are more or less embedded in the expanded filament apex; 4) regularly pantohexaporate pollen grains.)

Ye Guan, Peng Hua, MingSong and Huang ChengGang 2007. A new hopane triterpene from *Dipentodon sinicus* (Celastraceae). Biochemical Systematics and Ecology 35(12): 905-908. (Should read Dipentadonaceae?)

Ye WenHui, Nanga, R.P.R., Kang CongBao, Song JooHye, Song SeongKyu and Yoon HoSup 2006. Molecular characterization of the recombinant A-chain of a type II ribosome-inactivating protein (RIP) from *Viscum album coloratum* and structural basis on its ribosome-inactivating activity and the sugar-binding properties of the B-chain. Journal of Biochemistry and Molecular Biology 39(5): 560-570.

Yen FengLin, Wu TzuHui, Lin LiangTzung, Cham ThauMing and Lin ChunChing 2008. Nanoparticles formulation of *Cuscuta chinensis* prevents acetaminophen-induced hepatotoxicity in rats. Food and Chemical Toxicology 46(5): 1771-1777. (Showing that a nanoparticle formulation of *C. chinensis* extract substantially increased hepatoprotective effect in rats.)

Yen FengLin, Wu TzuHui, Lin LiangTzung, Cham ThauMing and Lin ChunChing 2008. Concordance between antioxidant activities and flavonol contents in different extracts and fractions of *Cuscuta chinensis*. Food Chemistry 108(2): 455-462. (Confirming that extracts of seeds of *C. chinensis* have anti-oxidant properties, supporting their traditional use as dietary additives to food, but showing an ethanol extract would be more beneficial than a water extract.)

Yin Jun, Han Na, Xu XinYang, Liu ZhiHui, Zhang BaoYan and Kadota, S. 2008. Inhibitory activity of the ethyl acetate fraction from *Viscum coloratum* on bone resorption. Planta Medica 74(2): 120-125. (An ethyl-acetate fraction from an aqueaous extract of *V. coloratum* showed the greatest ability to inhibit formation of osteoclast-like multinucleated cells from mouse bone marrow cells, and the presumed active ingredients are identified.)

Yoneyama, K., Xie XiaoNan, Kusumoto, D., Sekimoto, H., Sugimoto, Y., Takeuchi, Y. and Yoneyama, K. 2008. Nitrogen deficiency as well as phosphorus deficiency in sorghum promotes the production and exudation of 5-deoxystrigol, the host recognition signal for arbuscular mycorrhizal fungi and root

parasites. Planta 227(1): 125-132. (The parasite being *Strriga hermonthica*. Results contrast with those with *Trifolium pratense* in which only P deficiency increases stimulant.)

Yu WenBin and Wang Hong 2008. Pollen morphology of *Pedicularis* sect. *Cyathophora*, a group endemic to the eastern Himalaya-Hengduan Mountains region. Journal of Integrative Plant Biology 50(2): 244-252.

Yu WenBin, Zhang ShuDong and Wang Hong 2008. New taxa of *Pedicularis* (Scrophulariaceae) from the Hengduan Mountains, Southwestern China. Novon 18(1): 25-129. (Describing *P. gyrorhyncha* ssp. *glabrisepala* and *P. siphoantha* var. *stictochila*.)

Yuan ChengShan, Sun XiaoBai, Zhao PeiHua and Cao MeiAi 2007. Antibacterial constituents from *Pedicularis armata*. Journal of Asian Natural Products Research 96/8: 673-677. (8-epi-loganic acid and aucubin exhibited strong antibacterial activities against *E. coli* and *S. aureus* respectively.)

Yuan QingJun, Zhang ZhiYong, Peng Hua and Ge Song 2008. Chloroplast phylogeography of *Dipentodon* (Dipentodontaceae) in southwest China and northern Vietnam. Molecular Ecology 17(4): 1054-1065. (A detailed genetic analysis of *D. longipedicellatus* and *D. sinicus* on the southern Tibetan plateau, throwing doubt on the justification for recognising the two separate species.)

Zahran, E., Sauerborn, J., Abbasher, A.A., Ahmed, E.A., Mohukker, R.I., Karlovsky, P., Mohamed, E.A. and Müller-Stöver, D. 2008. "Pesta" and alginate delivery systems of *Fusarium* spp. for biological control of *Striga hermonthica* (Del.) Benth. under Sudanese field conditions. Biological Control 44(2): 160-168. (Reporting good (ca. 80%) suppression of *S. hermonthica* by local isolates of *F. nygamai* and *Fusarium* sp. 'Abuharaz' formulated in wheat flour-kaolin granules ('Pesta') and applied at 1.5 g per planting hole.)

Zaidi, M.A., Huda, A. and Crow, S.A. Jr. 2008. Biological activity and elemental composition of *Arceuthobium oxycedri* (dwarf mistletoe) of juniper forest of Pakistan.: Acta Botanica Hungarica 50(1/2): 223-230. (Extracts of *A. oxycedri*, a serious threat to the medicinal plant *Juniperus excelsa*, was shown to have activity against serveal bacteria and the fungus *Candida albicans*.)

Zhang ZhanXin, Xie WeiDong and Jia ZhongJian 2008. Glycosides from two *Pedicularis* species. Biochemical Systematics and Ecology 36(5/6): 467-472. (Reporting the isolation of glycosides of potential chemotaxonomic significance from *P. kansuensis* and *P. resupinata* ssp. *lasiophylla*.)

Zhao RenYou, Wang MingYue, Xu ZhenWang, Cheng RongLiang, Zhu ZhenXin and Ye YuZhu 2006. Forest injurious plants and their control in Lishui City of Zhejiang Province. Journal of Zhejiang Forestry College 23(6): 625-628. (39 species of injurious plants include 8 Loranthaceae.)

Zhao YunLi, Wang XiaoYing, Zhao YingChun, Gao XiaoXia, Bi KaiShun and Yu ZhiGuo 2007. HPLC determination and pharmacokinetic study of homoeriodictyol-7-*O*-β-D-glucopyranoside in rat plasma and tissues. Biological & Pharmaceutical Bulletin 30(4): 617-620. (Studies relating to homoeriodictyol-7-*O*-β-D-glucopyranoside isolated from *Viscum coloratum*.)

Zhou YuBi, Ye RunRong, Lu XueFeng, Liu Yang and Peng Min 2007. Effect of BSA on RAPD analysis of *Cynomorium songaricum*. Agricultural Science & Technology – Hunan 8(3/4): 64-67.

Zimmer, K., Meyer, C. and Gebauer, G. 2008.The ectomycorrhizal specialist orchid *Corallorhiza trifida* is a partial myco-heterotroph. New Phytologist 178(2): 395-400. (Nitrogen isotope studies confirm that *C. trifida* derives only about 50% of its N and 77% of its C from companion fungi and is therefore only partially mycoheterotrophic.)

HAUSTORIUM 53
has been edited by Chris Parker, 5 Royal York Crescent, Bristol BS8 4JZ, UK (Email chrisparker5@compuserve.com), Lytton Musselman, Parasitic Plant Laboratory, Department of Biological Sciences, Old Dominion University, Norfolk Virginia 23529-0266, USA (fax 757 683 5283; Email lmusselm@odu.edu), Jim Westwood, Dept. of Plant Pathology, Physiology and Weed Science, Virginia Tech, Blacksburg, VA 24061-0331, USA (Email westwood@vt.edu) and Diego Rubiales, Dep. Mejora y Agronomía, Instituto Agricultura Sostenible, CSIC, Apdo 4084, E-14080 Cordoba, Spain (Email: ge2ruozd@uco.es); with valued assistance from Dan Nickrent, Southern Illinois University, Carbondale, USA. Send material for publication to any of the editors.

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