



# haustorium

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## **ALECTRA AND STRIGA ASPERA IN BURKINA FASO**

As part of field surveys of parasitic weeds with ICRISAT, we have noticed *Alectra*

*vogelii* for the first time in Burkina Faso attacking cowpeas 5 km east of Gode and groundnuts in Toussiana village 50 km, southwest of Bobo-Dioulasso. Two plants were present on cowpea and several on groundnuts; In both localities sorghum was interplanted with the legumes and was itself parasitized by *Striga hermonthica*. Cowpea was parasitized by *S. gesnerioides*, a common occurrence in Burkina Faso. The Flora of West Tropical Africa (FWTA) records *A. vogelii* from Nigeria, Ghana, and Guinea. Recently Parker (1984) reported *A. vogelii* on cowpeas in Mali. According to FWTA, this parasite is a serious pest at at least one site in Cameroon. In southern Africa it is reported to be serious on cowpeas, groundnuts and bambara groundnuts (*Vigna subterranea*). We have not seen it on bambara in Burkina Faso but further surveys are needed.

*Striga aspera*, a species which closely resembles *S. hermonthica*, is usually considered a sort of biological curiosity when it is found parasitizing grain crops. However, in a large sugar plantation near Banfora this species was heavily damaging sugarcane. Likewise, we found heavy infestations in maize. No doubt some reports of damage from *S. hermonthica* actually involve *S. aspera*.

K. V. Ramaiah, S. B. Safa,  
L. J. Musselman

## **CUSCUTA SPECIES AS CONTAMINANTS IN SEED SHIPMENTS**

During the past several years, we have been investigating the occurrence of *Cuscuta*

*spp.* in commercial shipments of seeds, especially niger seed (*Guizotia abyssinica*) which is imported in large quantities into the United States largely for birdseed. Much of the seed originates in India. The Plant Protection and Quarantine service of the U S Department of Agriculture has the responsibility of determining contaminants at ports of entry. These have been shipped to the Foreign Weeds Research Center at Frederick, Maryland where we have grown them to flowering for identification. To date we have found that all contaminants belong to only two species: *C. pentagona* (syn. *C. campestris*) and *C. australis*. *Cuscuta pentagona* is native to the United States (the type specimen was collected not far from Old Dominion University!) but is becoming established in many parts of the world. We have recently seen it in India on niger seed and in Burkina Faso on roadside weeds. It is ironic that it is now being re-introduced into the United States. *Cuscuta australis* superficially resembles *C. pentagona* but has different corolla lobes. Preliminary work indicates that seed surface characteristics may be useful in distinguishing among species.

Richard Craeger, U S Department of  
Agriculture, Agricultural Research  
Service, Frederick, Maryland and  
L. J. Musselman

• **CHROMOSOME  
NUMBERS OF SOME  
STRIGA SPECIES**

In this preliminary study, new chromosome counts were obtained for *S.*

*elegans* (N=18), *S. asiatica* (N=19), and *S. forbesii* (N=22). A correlation of P=0.27 was found between chromosome number and pollen exostructure. Further work is needed to determine relationships within the genus using as many characters as possible.

Cynthia L. White, Old Dominion University

**HAUSTORIUM TEN  
YEARS OLD!**

HAUSTORIUM was started ten years ago as an outcome of a *Striga*

workshop in Khartoum. Our newsletter now has a mailing list of 450 "subscribers" in 71 countries. The purpose remains the same-to provide communication among workers on any group of parasitic plants. This includes basic and applied researchers as well as many library subscribers. Most of our subscribers are in developing countries and so we often get requests from these colleagues for copies of articles we review in the literature section. We regret this is not possible but it may be possible to produce more lengthy reviews or abstracts if there is a large enough demand.

Remember, HAUSTORIUM is a newsletter, not a journal, so articles should be informal but accurate and informative. We are happy to receive any information you wish to share. For the format, see a recent copy. Please consider sending any information on your work with parasites. No articles, no newsletter!

**IS STRIGA  
HERMONTHICA NATIVE  
TO MOST OF WEST  
AFRICA?**

Recent field work in West Africa has raised this question because *Striga hermonthica* is seldom, if ever,

seen in native grasslands. This is in contrast to *S. aspera* and *S. asiatica* which are often frequent in natural plant communities. Has *Striga hermonthica* been widely spread along with its most common hosts, sorghum and millet?

**GENETIC DIVERSITY  
IN STRIGA  
HERMONTHICA**

The genetic diversity of the millet and sorghum strains of *Striga hermonthica* in

Burkina Faso is being studied in a joint effort with ICRISAT. Using the technique of allozyme analysis eight enzymes have been examined by starch gel electrophoresis. Preliminary results indicate that there is variation within populations but little variation among populations as would be predicted for an obligate outcrosser. These results contrast sharply with the situation in *Striga asiatica*, a strongly autogamous species, in which there is great genetic uniformity within the American population as determined by Werth et al.

Bharathalakshmi, Old Dominion University

**SCREENING FOR  
RESISTANCE TO  
STRIGA FORBESII**

The development of *Striga*-resistant sorghum cultivars is considered to be the most econom-

ically feasible form of witchweed control for it requires minimal input from subsistence farmers. In a recent cooperative project with Dr. A. B. Obilana (SADCC/ICRISAT) and Old Dominion University some *S. asiatica*-resistant (SAR) cultivars developed at ICRISAT Center were screened for their performance against *S. forbesii* in Zimbabwe using the advanced screening checkerboard layout.

Evaluation of test entry performance was obscured by poor and variable host emergence, however, general trends were evident. Cultivars supporting no or very little emerged witchweed included SAR 29, SAR

33, and SAR 19. RADAR, PMC, RED SWAZI, and SAR 26 were found to be quite susceptible. Information on yield was not recorded due to extensive cow and bird damage.

The fact that SAR lines show promising levels of resistance to *S. forbesii* indicates the possibility of broad-based resistance to problem witchweeds.

David A. Knepper, Old Dominion University

## LITERATURE

Riches, C. R. 1987? *Witchweeds (Striga species) of Southern Africa. A field Identification Guide.* SADCC/ICRISAT Sorghum and Millet Improvement Program, Bulawayo, Zimbabwe. (An attractively printed, four page pamphlet with colored pictures of *Striga hermonthica*, *S. asiatica*, *S. gesnerioides*, *S. forbesii*, and *Alectra vogelii*. There is a mimeographed insert with a key to *Striga* species of economic importance in southern Africa. SADCC/ICRISAT is to be complemented on developing this very practical pamphlet which should make farmers in the region more aware of the *Striga* problem.)

Chang, M., Netzly, D. H., Butler, L. G., and D. G. Lynn. 1986. Chemical regulation of distance: Characterization of the first natural host germination stimulant for *Striga asiatica*. *Journal of the American Chemical Society* 108: 7858-7860. (Strigol, an exudate from cotton roots, was identified and later synthesized several years ago. But cotton is not a host for *Striga asiatica* so this report is the first identification of a germination stimulant from a host of *Striga asiatica*. The compound is as a benzoquinone derived from sorghum root exudate. It is apparently very labile. The ability of

*Striga* to recognize this labile hydroquinone allows it to commit itself to a host through germination only within the distance through which the compound can diffuse before being oxidized. This report demonstrates the biological commitment of this parasite to a transient chemical species that can define viability of and distance to a potential host.)

Chang, M. and D. G. Lynn. 1986. The haustorium and the chemistry of host recognition in parasitic angiosperms. *Journal of Chemical Ecology* 12(2): 561-579. (2,6-dimethoxy-p-benzoquinone (2,6-DMBQ) from sorghum root exudate is described as a "haustoria-inducing principle" in *Agalinis*, a hemiparasite of the Scrophulariaceae, and *Striga*. The parasite apparently exudes an enzyme which digests part of the host root, releasing 2,6 DMBQ which, in turn, triggers haustorial development.)

Williams, C. E. and R. K. Zuck. 1986. Germination of seeds of *Epifagus virginiana* (Orobanchaceae). *Michigan Botanist* 25: 103-106. (*Epifagus virginiana* is the most common member of the Orobanchaceae in most parts of Eastern North America. It is an obligate parasite of beech trees (*Fagus grandifolia*), flowers in the late fall, and produces large quantities of dust-like seeds which have never been known to germinate! Using soil from beneath *Epifagus* plants, small quantities of seeds were germinated. These are illustrated in the paper.)

Rozema, J., Broekman, R., Letschert, W. Arp. J., Van Esbroek, M. and H. Punte. 1986. A comparison of the mineral relations of a halophytic hemiparasite and holoparasite. *Acta Botanica Neerlandica* 35(2): 105-109. (This study compares the salt uptake of *Odontites verna*, a hemiparasite, and

*Cuscuta salina*, a holoparasite. The holoparasite did not concentrate salts even though it was parasitizing a host with high salt concentration while the hemiparasite took up a high concentration of salt.)

**FIFTH PARASITIC  
PLANTS SYMPOSIUM**

Planning has begun for a fifth parasitic plants symposium, tenta-

tively scheduled for 1990, following the successful 1987 symposium held in F.R. Germany. Suggested venues include **Spain**, Sudan, Zimbabwe, and Botswana. Anyone with suggestions for a site, or other ideas, is invited to contact one of the editors.

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