# haustorium

Parasitic Plants Newsletter

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Official Organ of the International Parasitic Seed Plant Research Group


HAUSTORIUM LIVES! We are very pleased to state that our newsletter has once again been resuscitated and it now appears that we can resume production of two copies per year for the next three years. This is due to funding from the U.S. Agency for International Development through grant 86-CRSR-2-2869 administered by the Cooperative State Research Service and awarded to Old Dominion University. Happily, the International Plant Protection Center at Oregon State University, who produced HAUSTORIUM several years, will resume doing layout and printing with mailing by Old Dominion University.

However, funding is not all that is needed. We need contributions from readers of HAUSTORIUM! Co-editor Chris Parker will be working in Ethiopia for three years *(see* following item) so please send any item of interest to Lytton Musselman.

HAUSTORIUM is a newsletter and items submitted should be brief, understandable by the general reader, and usually without a bibliography. Unsigned articles are *by* the editors.

WEED RESEARCH ORGANIZATION

The Weed Research Organization (WRO) was sadly closed down on March 1986, but the core of the staff has been transferred *to* form the Weed Research Division (WRD) of Long Ashton Research Station (LARS) at Bristol. The Tropical Weeds Unit continues in existence at the new site and has been awarded a two-year contract to continue work on Striga gesnerioides and Alectra vogelii on cowpea. The aim will be to continue evaluating resistant material for IITA and Botswana and to identify the mechanism of resistance in the cowpea. Chris Parker will be leaving this and other work at LARS in the hands of John Terry, *Anita* Wilson and Teresa Polniaszek while he takes up a three-year secondment to do field work on Striga and other parasitic weeds in Ethiopia from where he will be pleased to maintain contact with HAUSTORIUM readers via Post Office Box 32477, Addis Ababa.

THE FOURTH INTERNATIONAL SYMPOSIUM ON PARASITIC FLOWERING PLANTS

This meeting is scheduled for 2-7 August 1987 at Philipps-University in Marburg, West Germany. The *organizer*, Prof. Hans-Christian Weber, has done an excellent job arranging the meetings and other activities. This symposium will immediately follow the International Botanical Congress in Berlin where there will be a special session on parasitic plants. *As* a result, a large number of parasite workers are expected at the Marburg meetings. This should prove to be an outstanding meeting. The language of the meeting will be English. For further information contact: Prof. Hans-Christian Weber, Fachbereich Biologie, Lahnberge, Philipps-Universitat, 3550 Marburg, West Germany. Telephone: 06421-282091. Telex: 482372 UMRD c/o Weber-Biologie.

INDEX OF PARASITIC SEED PLANT RESEARCHERS

After a long delay, it is now possible to state that this project is *once* again viable. The data is being fed into the computer and we *hope* to have final production within a *year*. If you wish to be included, please *send* a short summary of your research interests, the taxa involved

hosts (if any), citation of *recent* publications (if any), and your complete address with phone and telex number (if you have these). NOTE--if you have already returned the form sent out long ago with HAUSTORIUM, you do not need to send *any* further material unless *you* wish to update your entries.

**POLLEN STRUCTURE IN STRIGA**

A recent thesis at Old Dominion University deals with the pollen exostructure in Striga. Mark DeLeonardis has used scanning electron microscopy as well as light microscopy to elucidate the strucutre of pollen and attempt to relate structural differences to the taxonomy of the genus. striga pollen is relatively uniform with tricolpate or tetracolpate grains and psilate to rugulate surfaces. One interesting feature was a correlation showing some relationship between surface features and pollination mechanisms. Most species which *are* autogamous (self-pollinating) *are* psilate (smooth) while Striga hermonthica, an allogamous (out-crossing) species, was rugulate (with an *irregular* surface). There was no correlation between subgeneric classification and pollen structure. Thirteen of the approximately thirty species were surveyed. This work is part of an overall investigation into the systematics of the genus Striga.

**PROCEEDINGS OF THE 1986 OROBANCHE WORKSHOP, WAGENINGEN**

This symposium was held 13-17 January at the Agricultural University in Wageningen, The Netherlands. The proceedings have now been published under the title of Biology and Control of Orobanche, edited by Sine ter Borg. This is an attratively produced paper bound volume of 206 pp. + VII which is certainly the most up-to-date treatment *on* this important genus of root parasites. Topics include taxonomy and the general agronomic problems; dormancy, germination and haustoria formation; growth and development and population studies; breeding and control; and a helpful summary of work and recommendations for further research. Copies *can* be ordered by writing: Dr. S. J, ter Borg, Department of Vegetation Science, Plant Ecology and Weed Science, Agricultural university, Bornsesteeg 69, 6708 PS Wageningen, The Netherlands. The price is Hfl 25 and checks should be made payable to S. J. ter Borg/Proceedings Orobanche, account number 47.75.61.039, Amrobank, Wageningen The Netherlands.

## LITERATURE


Van hulst, R, A. Theriault, B. Shipley. 1986, The systematic position of the genus Rhinanthus (Scrophulariaceae) in North America. Canadian Journal of Botany 64:1443-1449.

Musselman, L. J. 1986. The genus Cuscut in Virginia. Castanea 51:188-196.

Reuter, B. C. 1986, The habitat, reproductive ecology and host relations of Orobanche fasciculata Nutt. (Orobanchaceae) in Wisconsin, Bulletin of the Torrey Botanical Club 113:110-11 (This broomrape is very rare in Wisconsin, and the aim of the study was to determine aspects of its biology whi might be used to favorably manage the Species. One interesting-feature is th setting of *seeds* parthogenetically, a phenomenon which should be looked for agronomically important species).

Bebawi, F. F., A. E. A%&, S. A. Khalid. 1986, Germination host preference and phenolic content of witchweed (Striga hermonthica) *seed* populations. Weed Science, 34:529-532.

Kulkarni, N. and V. K. Shinde. 1985. Genetics of grain yield in sorghum (Sorghum bicolor) under striga (Striga asiatica) stress. Indian Journal of Genetics and Plant Breeding 45:21-24.

Kulkarni , N. and V. K. Shinde. 1985. Genetic analysis of striga resistance i sorghum (Sorghum bicolor) stability of yield and its components with and under striga (Striga asiatica) stress. Indian Journal of Genetics and Plant Breeding 45 :25-29.

Hepper, F. N. 1986. proposal to reject the name Buchnera euphrasioides/Striga euphrasioides (Scrophulariaceae) . Taxon 25:390-391. (The plant once known as Striga euphrasioides, widespread in Indi

but also fount! *in* the Arabian penninsula and parts of East *Africa*, should now be correctly referred to as S. angustifolia due to an error in typification).

Farina, M.P.W., P.E.L. Thomas, P. Channon. 1985. Nitrogen, phosphorus, and potassium effects on the incidence of Striga asiatica in maize, Weed Research 25:443-448.

Gupta, A. and M. Singh. 1985. Mechanism of parasitism *by* Cuscuta reflexa: Distribution of cytokinins in different regions of the parasite vine. Physiologia Plantarum 63:76-78.

Raynal-Roques, A. 1985. Striga baumannii (Scrophulariaceae) a hemiparasitic and geopyrophytic species. Adansonia 7:123-134. (A summary of this work appeared in HAUSTORIUM 15).

Sakanishi, T., J. Ogaki, A. Inada, H. Murata, M. Nishi. 1985. The alkaloids of Striga asiatica. Journal of Natural Products 48:491-493.

Vickrent, D. L. 1986. Genetic Polymorphism in the morphologically reduced dwarf mistletoes (Arceuthobium, Viscaceae): an eletrophoretic study. American Journal of Botany 73:1492-1502.

Wassib, A. M., A. H. A, Hussein, E. F. Hassenein, H. A. Saber. 1985. Effect of pronamide and resistant varieties *on* Orobanche infection and faba bean yield. FABIS Newsletter 13:22-25. (Bean variety Giza 402 supported similar numbers of emerged O. crenata to susceptible varieties but weight of parasite was generally much less and bean yields, in *the* presence of heavy Orobanche, higher. Propyzamide 0.5 kg product/ha applied *one* month after planting further reduced attack and enhanced yield of Giza 402).

Gayed, S. K. 1986. Dodder in tobacco seedbeds in Ontario and its control. Canadian Journal of Plant Science, 66:421-423. (Infestation of tobacco seedbeds by C. gronovii was eliminated by steam sterilization or methyl bromide 500 kg/ha but only partly reduced by dazomet 500 kg/ha or allyl alcohol 680 l/ha).

Aalders, A. J. G. and R. Pieters. 1986. In vitro testing with 2,3,5-triphenyl tetrazolium chloride (TIC) of Orobanche crenata seed metabolism. FABIS Newsletter, 13:35-37. TTC can be used confirm the viability of O. crenata see but only when freshly imbibed. After a few days of incubation, the seeds no longer show coloration within 2 days, apparently due to reduced metabolic activity, rather than loss of viability

Ramaiah, K. V. 1985. Hand-pulling of Striga hermonthica in pearl millet. Tropical Pest Management 31:326-327. (Hand-pulling S. hermonthica once only, 10 days before harvest *on* 9 farmer site in Burkina Faso resulted in over 50% reduction of *Striga* emergence in the following *year* and over 50% increase in yield).

Musselman, L. J. and F. N. Hepper. 1986. The witchweeds (Striga, Scrophulariaceae of the Sudan Republic. Kew Bulletin 41:205-221. (Ten species *are* described *and* illustrated along with information distribution, pollinators, hosts, etc.).

Bradow, J. M. 1986. Germination promotic in dorman shepherdspurse (Capsella bursa-pastoris) seeds *by* strigol analogs and other stimulants. Weed Science 34:1-7. (Strigol and epistrigol failed to influence germination of dormant Capsella seeds, but the analogs GR24, 2RAS and 3RAS promoted up to 80% germination at 0.1 mn, the first evidenc for effect of these compounds on non-parasitic plants).

Nisa, M., S. Akbar, M. Tariq. 1985. Anti inflammatory activity of Cuscuta chinensis. Fotiterapia 56:315-317. (Thi parasite is used as an anti-arthritic drug in India. It is not clear if C. *chinensis* is the only species with this activity).

Fer, A. and M. Capdepon. 1985. Un aspect meconnu due parasitism des angisopermes l'existence d'une secretion de substance au niveau des sucoirs de cuscute. Annales des Sciences Naturelles-Botanique Series 137:229-236. (Small quantities of materials are secreted *by* haustoria into the host tissue. The amount of material *is* very small, less than 1% of the total labeled photosynthate in the host, and the nature of the materials are unknown).

Visser, J. H. 1985. Parasitic Flowering Plants. Pretoria: Hollandsch Afrikaansche Uitgevers Maatschappij. (This is a very attractive, hardbound book of 47 pages, produced as part of the publisher's "Insight" series intended as supplementary material in the public school curriculum. It is an excellent introduction to the subject of parasitic flowering plants with three *sections:* The parasitic way of life which deals with the principles of parasitism, the haustorium etc. and then a section *each* on stem and root parasites. Readers will recognize some of the beautiful full color photographs from the author's other book on South African parasites, but there are also new photos as well as some helpful line drawings.

Minkin, J. P. 1986. A comparative pollen morphology of the Orobanchaceae and Rhinanthoid Scrophulariaceae. 83 pp. PhD Dissertation, Botany, Miami University, Oxford, Ohio. (Based on pollen morphology, the author suggests that the parasitic Scrophulariaceae, all in the subfamily Rhinanthoideae, show closer affinity with the Orobanchaceae than with the other subfamily, Antirrhinoideae, of the Scrophulariacaeae).

Hunter, I. J. and J. H. Visser. 1986. The nitrate reductase activity (NRA) of some South African parasitic flowering plants and *their* hosts. South African Journal of Botany 52(3):246-248.

## STRIGA LATERICEA - ERRATUM

My co-editor humbly apologizes for family editing my note on "Striga species in Ethiopia" in Haustorium No. 16, such that Striga latericea was described as spreadi*by* a system of "rhizomes". I had originally recognized *and* described these structures as "mots", and my colleague n agrees that they are indeed root rather than rhizome (i.e., underground stem) structures. This was confirmed by sectioning and microscopic study of preserved material and I thank student David Knepper for the careful work and excellent pictures that he produced in th course of his investigation of this material. (Co-editor: grovel, grovel).

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