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Parasitic Plants Newsletter

Number 16
March 1986

Official Organ of the International Parasitic Seed Plant Research Grou

HELP! HAUSTORIUM IS A PARASITE WITHOUT A HOST!

This could be the last issue of our newsletter as, once again, we are without a **sponsor. This issue is being printed and mailed through the generosity** of the INTSORMIL office but this is the last issue they can support. Can any one help?

STRIGA SPECIES IN ETHIOPIA

On a recent visit to Ethiopia it was confirmed that Striga hermonthica is continuing to spread and is now found up to an elevation of 2300M in some areas. Occurrences on some new farms at low altitude are believed to have arisen from the abundant **natural** infestation in the native savannah, apparently parasitic mainly of species on Setaria.

The most striking species was S. latericea which is known from native vegetation in a number of districts in Ethiopia and other parts of East Africa but occurs as a persistent localized problem on the Meta Hare Sugar Corporation farm in the Awash valley. It is as tall as S. hermonthica but has broader leaves and a dense covering of fine hairs and spikes of brick-red flowers up to 2 cm long.

Close examination of this population showed that it is perennial with a system of rhizomes several mm thick from which adventitious buds produce aerial shoots. The aerial parts also have a perennial habit with new shoots arising from th? lower nodes after much of the stem has matured and died. The parasite is apparently slow to establish and is not normally noticed in the first year *after* planting sugar cane, but is seen as spreading patches in ratoons. These patches grow up to several meters across and persist for many years and even re-appear in the same place after the ratoon is destroyed and the crop replanted. New infestations are not often noted and it appears that it spreads mainly by vegetative reproduction. Very little seed was being set due *to* heavy infestation by a pollen eating larva.

C Parker

WHAT EVER HAPPENED TO THE INDEX OF PARASITIC SEED PLANT WORKERS?

We still plan to produce such an index but production has been delayed due to a change in the way HAUSTORIUM is prepared and, at present, a lack *of* a sponsor! It is stffl not too late to send your forms to L J Musselman.

A TUBEROUS HAUSTORIUM OF THONNINGIA *SANGUINEA* (BALANOPHORACEAE) GROWING ON HEVEA BRASILIENSIS.

In 1985 a tuber 8 cm in diameter was sent to Kew from Cameroun where it was collected by Mr P G S Hall of the Natural Resources Department, Commonwealth Development Corporation. It was said that Thonningia sanguinea was conspicuous as red rosettes on the ground in a rubber plantation. As far as we know such tubers have never been reported from this species and examination of herbarium material at Kew provided nothing like it. Although there was no reason to doubt its identity as photographs of the flowers were provided, no inflorescence was attached so confirmation was sought by anatomical study. The woody root to which the tuber was attached proved to be rubber (Hevea brasiliensis) while the tuber consists of parenchymatous ground tissue with islands of vascular tissue pursuing an irregular course and some sclereids. This is anatomically similar to the only reference *slide* at Kew of another member of the same family, Langsdorffia papuana from New Guinea, which is good evidence that the tuber consists of Thonningia rather than Hevea tissue.

It would be interesting to know whether such a tuber is frequent and whether *or* not it occurs on host plants other than rubber. According to the Anatomy of the Dicots, tuberous rhizomes in the Balanophoraceae range in size from a small nut to a human head. Striga gesnerioides also forms a tuber-like structure *of* some size but only when the host is an arborescent species of Euphorbia, which like Hevea, is a latex producing member of the Euphorbiaceae. Is

there an analagous function in these two parasites from totally unrelated families each producing tuberous haustoria? (See figure on page 4).

F N Hepper and P Gasson, Royal Botanic Gardens, Kew.

FOURTH SYMPOSIUM ON PARASITIC WEEDS, SUMMER 1987.

Plans are proceeding for our next IPSPRG meeting which will be held in Germany during the summer of 1987 at the Philips University in Marburg.

The actual date of the meeting has not yet been decided but will be either before or after the Botanical Congress to be held in Berlin 24 July to 1 August 1987.

MEDICINAL USES OF A MEMBER OF THE BALANOPHORACEAE IN SOMALIA

During a recent collecting trip in the Middle Juba Region of Somalia, we encountered a preparation in the local markets sold as a cure for diarrhea and menstrual disorders called in Somali, dinsi. Because of its resemblance to tartous (a member of the Hydnoraceae used in other parts of Africa as a medicine for the same ailments), we attempted to locate the source of the dinsi. After some consultation with local people we found that what was being sold was the dried and broken pieces of a member of the Balanophoraceae. The plant has not yet be identified but it does not resemble plans of the *genus* Balanophora and could be a species of Chlamydophytum or a related genus. Further work is under way to determine the plant and other uses as well as some information on the chemical makeup of the medicine.

Cistanche is also known as dinsi in the same area and we were led by a nomad to a stand of Cistanche and told it was dinsi. However, the material being sold in the market definitely was not Cistanche.

Aweys Yusef and L J Musselman

EFFECT OF FERTILIZER ON STRIGA COUNT IN WHEAT

An experiment on the long range effect of continuous cropping and manuring on Jowar wheat rotation is in progress at the Agricultural Research Station of the University of Agricultural Sciences at Sirguppa in the Tunga Bhadra Project area. The soil is a vertisol and the experiment has been in progress since 1977. The treatments consist of all combinations of three levels of N (40, 80, and 120 kg N/ha), three levels of P_2O_5 (0, 40, and 80 kg/ha) and two levels of K_2O (0 and 40 kg/ha). The experiment is laid out in a $3^2 \times 2$ partially unfounded design with four replications.

The crop of Hy. jowar-CSH-5 was sown on 8-7-1985 with a spacing of 40 cm between rows and 10 cm between plants within a row. Counts of Striga asiatica were recorded treatment-wise at 70 days after sowing. The data on weed counts and visual observation indicates that the weed population is low in the plots receiving higher doses of N. The effect of P_2O_5 levels and K_2O level did not show any influence on the Striga count. The data indicates that the intensity of Striga is greater in N poor soils.

M M Hosmani, V Jagannnath, K M S Sharma, University of Agricultural Sciences, Shimo India.

LITERATURE

The underground sorcery of witc weed. Discovery. Decemt 1985. (This is a popular acco of a very significant and as unpublished discovery of t chemical radar" of Stri asiatica. J L Riopel and Lynn have found that the parasi sends a message to the host whi in turn tells the parasite produce a haustorium).

Yatskievych, G, Zavada, I 1984. Pollen morphology Lennoaceae. Pollen et Spor 26: 19-30. (Pollen structu supports the concept that th North American family of holopa asites consists of only fa species.)

Iranshar, M. 1983. New record of cuscuta (Cuscutaceae) fro Iran. Iranian Journal of Botar 2(1): 9-12.
(Not surprisingly, C. campes tris is now known from Iran Also noted for the first tim is C. lehmanniana. There ar figures of the species and map of their distribution.)

International Institute o Agriculture. 1985. IIT Research Highlights for 1984. (Two articles on Striga, on describing a survey of species a maize in Nigeria and suggesting that S. aspera is much more important than previously thought and also that S. forbesii and a yellow flowered form of S. asiatica are of more local importance. Another species, perhaps S. passargei, has also been noted on maize. A second article describes the discovery

f resistance to S. gesnerioides in the cowpea variety %vita-2 and the transfer of the resistance into varieties with insect resistance.).

Vasudeva Rao, M J . 1485. Techniques for screening sorghums for resistance to Striga. Information Bulletin 20, ICRISAT. (An extremely well-illustrated and clear guide to a range of techniques for the study of Striga from laboratory to field which will be useful not only to the researcher on crop resistance but to those working on other approaches also. This forms a chapter in the forthcoming volume Striga Biology and control to be published by CRC Press in 1986.)

Kuijt, J, Bray, D, Olson, R. 1985. Anatomy and ultrastructure of the endophytic system of Pilostyles thurberi (Rafflesiaceae). Canadian Journal of Botany 63: 1231-1240. (Three cell types are described from the cortical strands one of which is considered to be a sieve element although vestigal.)

Nassib, A M , Hussein, A H A, El Rayes, F M. 1985. Effect of variety, chemical control, sowing date and tillage on Orobanche spp infestation and faba bean yield. Fabis Newsletter 10:11-15. (A useful summary of a wide ranging series of studies on O. crenata in Egypt.)

Yatskievych, G. 1985. Notes on the biology of the Lennoacme. Cactus and Succulent Journal (U.S.) 57: 73-79. (A well illustrated, in color, and interesting account of this fascinating family.)

Scrophulariaceae Research Newsletter 1(2). (This my be of interest to HAUSTORIUM readers who are work with parasitic Scrophulariaceae. Most of the newsletter is concerned with non-parasitic species but there is also a helpful review of literature which covers the entire family. You can obtain the newsletter by writing: K Barringer, Field Museum of Natural History, Chicago, Illinois 60605.)

Olson, A R, Kuijt, J. 1985. Sieve elements in the morphologically reduced mistletoe Viscum minimum Harvey (Viscaceae). American Journal of Botany 72: 1220-1224. (This minature mistletoe with shoots only 2-3 mm long on Euphorbia horinda is shown to have functional phloem elements, unlike some other reduced mistletoe species.)

Clay, K, Dement, D, Rejmanek, M 1985. Experimental evidence for host races in mistletoe (Phoradendron tomentosum). American Journal of Botany 72: 1225-1231. (Parasite seed collected from Celtis, Ulmus, and Prosopis were grown on all three hosts. Growth was best on the host from which the seed was collected, suggesting some degree of host race development.)

Ehleringer, J R, Schulze, E D. 1985. Mineral concentration in an autoparasitic Phoradendron californicum growing on a parasitic P. californicum and its host Cercidium floridum. American Journal of Botany 72: 569-571. (Concentrations of a range of mineral elements were least in the host and highest in the hyperparasite. It is suggested this is due to higher transpiration rates in the parasite.)

Sahai, A, Shivanna, K R. 1985. Seed germination and seedling growth in Sopubia delphinifolia-a hemi-root parasite: germination requirements and :requirements for seedling growth and the role of cotyledons. Annals of Botany 55: 775-783 and 785-791. (Light is shown to be essential for germination, which is also greatly increased chilling (4 C) for a few days or by ethylene. Continued growth in the absence of a host requires a carbohydrate source or high light intensity.)

Alosi, M C, Calvin, C L. 1985. The ultrastructure of dwarf mistletoe (Arceuthobium spp.) sinker cells in the region of the host secondary vasculature. Canadian Journal of Botany 63: 889-902. (Sinker cells are similar in three different species. Xylem is not continuous through the sinker cells but apoplastic continuity is provided by fused cellulosic cell walls.)

Musselman, L J. 1985. Bean stranglers! Explorer 27(3): 23-25. (A popular illustrated account of the genus Orobanche.)

Musselman, L J. 1985. Fertility and floral patterns in some species of Striga (Scrophulariaceae). National Geographic Society Research Reports 20: 487-491.

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This issue of HAUSTORIUM was reproduced and mailed to you by the Sorghum/Millet Collaborative Research Program, INTSORMIL. This collaborative research program is supported by a grant from the United States Agency for Internation Development, Contract Number DAN-1254-G-SS-5065-00.