

ANATOMY OF ATTACHMENT OF THE ROOT PARASITE *THONNINGIA SANGUINEA* VAHL. ON *HEVEA BRASILIENSIS*

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Idu, M., Begho, E.R. and Akpaja, E.O. (2002). Anatomy of attachment of the root parasite *Thonningia sanguinea* Vahl. on *Hevea brasiliensis*. *Indian Journal of Natural Rubber Research*, 15(1) : 33-35.

Thonningia sanguinea Vahl. was observed to develop tyloses internally, as a result of intrusion of the host *Hevea brasiliensis* into its tissues. The tissues were also squeezed and xylem cells split off into strands. At the point of contact between *T. sanguinea* and the host plant, enlarged tissues (galls) developed. Ecologically, the plant is hazardous to rubber as it dominates the plantation floor.

Key words: *Hevea brasiliensis*, Root parasite attachment, *Thonningia sanguinea*

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INTRODUCTION

Thonningia is a member of the family Balanophoraceae, with about 18 genera, mainly of tropical distribution. This tropical African genus of five root parasitic species is represented in Nigeria by one species, *Thonningia sanguinea* Vahl.

The flower in the species is extremely reduced to a very small structure, combined with the fleshy nature of the inflorescence. Often they are mistaken for a fungus commonly called Maltese fungus (Parker and Riches, 1993). The inflorescence consists of a dense mass of minute flowers in a composite like head, surrounded by rings of red scales, which cover the peduncle.

The plant consists mainly of an extensive, robust underground system (rhizomes) often producing the red fleshy inflorescence that emerges only a few centimetres above the ground. The rhizome swells to form large tuberous haustoria or galls on contact with the host tissue especially rubber tree roots. The galls are darker than the rhizome and has a rough surface. They are usually fleshy. An average mature gall is about 18 cm in diameter. The galls either encircle the rubber root, completely arresting any further growth, or may only partially envelop the roots as they continue growing (Hepper and Gasson, 1986; Oloide, 1982). Although referred to as rhizomes, there are some evidences that these organs may be modified

roots (Kuijt, 1969).

A single plant of *T. sanguinea* can spread to attach 20 or more trees over an area of 0.5 hectares of land (Parker and Riches, 1993). The host range is not clearly known, but includes a wide range of forest species, especially rubber (Nyawuame and Gill, 1991). However, the exact nature of parasitism has not been investigated.

T. sanguinea is an important medicinal plant. The flower along with other medicines, is used as vermifuge and in treatment of sore throat and dysentery. The modified root is used for treating bronchial asthma and skin disease (Dalziel, 1948; Ampofo, 1977; Gill, 1992).

Only very little work has been undertaken in the area of the anatomy of interaction of *T. sanguinea* with the host. The present study was aimed at an anatomical evaluation of the host-parasite union.

MATERIALS AND METHODS

The study was conducted in the plantation of Rubber Research Institute of Nigeria, Iyanomo, Edo State, situated within a lowland forest zone of Nigeria, spanning across Iyanomo and Obaretin villages 25 km south-west of Benin City. It lies between latitude 5°N and 6°N and longitude 5°E and 6°E at an elevation of approximately 300 m above mean sea level. The plantation covers approximately 1387 hectares of land