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Parasitism In Cuscuta - A Critical Note On Its Nature

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Cuscuta reflexa developed vascular connections in the roots of Pothos plants

When *Pothos* plant was artificially infected by *Cuscuta reflexa* branches of parasite penetrated not only stem, petiole and leaves but also aerial roots of the host (Fig.1). Anatomi cal studies of infected organs have been carried out to understand the mechanism of nourish ment.

The infected leaves, petioles and aerial roots of *Pothos* were fixed in F.A.A. Fixed materials were washed and dehydrated in tertiary butyl alcohol series and sections were cut at 4 -12 µm thickness. The safranin- fast green combination was used for staining.

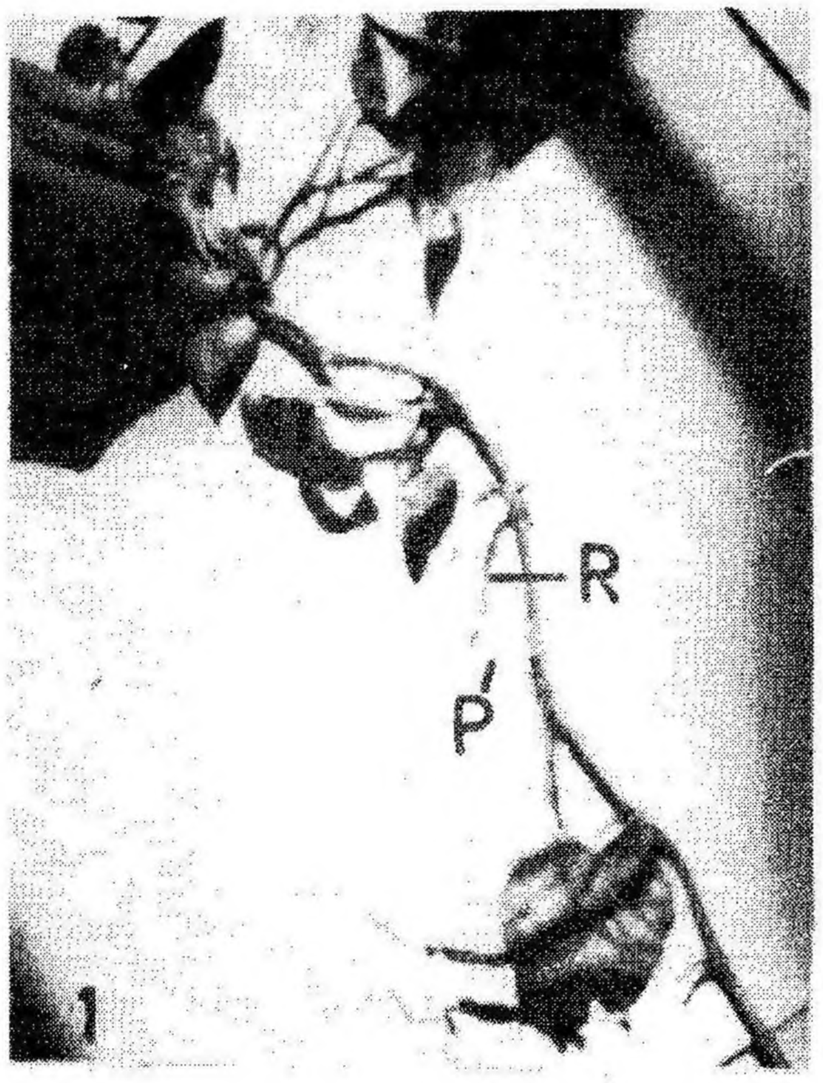

Fig. 1. *Cuscuta reflexa* growing on *Pothos*.

The internal structure of infected roots (Fig.2) revealed that the haustorium penetrated through epidermis and proliferated the cortex. On reaching the stele, it established vascular connections with the host similar to those found in the stem infected by *Cuscuta*.

The sections through petiole and leaves infected by the parasite also showed similar haustorial outgrowths forming xylem and phloem connections with their counterparts in the host (Figs. 3 & 4).

The presence of xylem bridge between the haustorium and the xylem of roots, petioles and leaves suggested the physiological suitability of organs as a source of nutrient supply to the

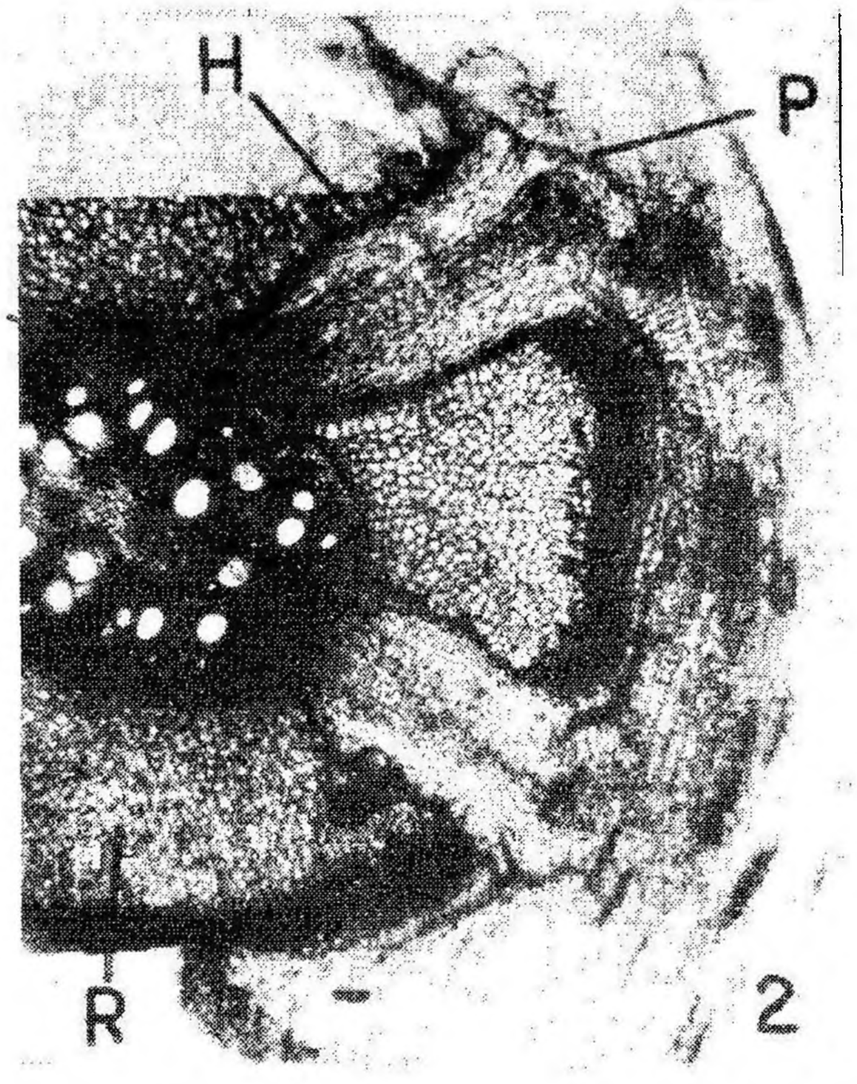

Fig. 2. T.S. of Pothos root and the parasite x 25.

parasite (Pierce 1893; Thoday 1911). Such connections were also reported between two

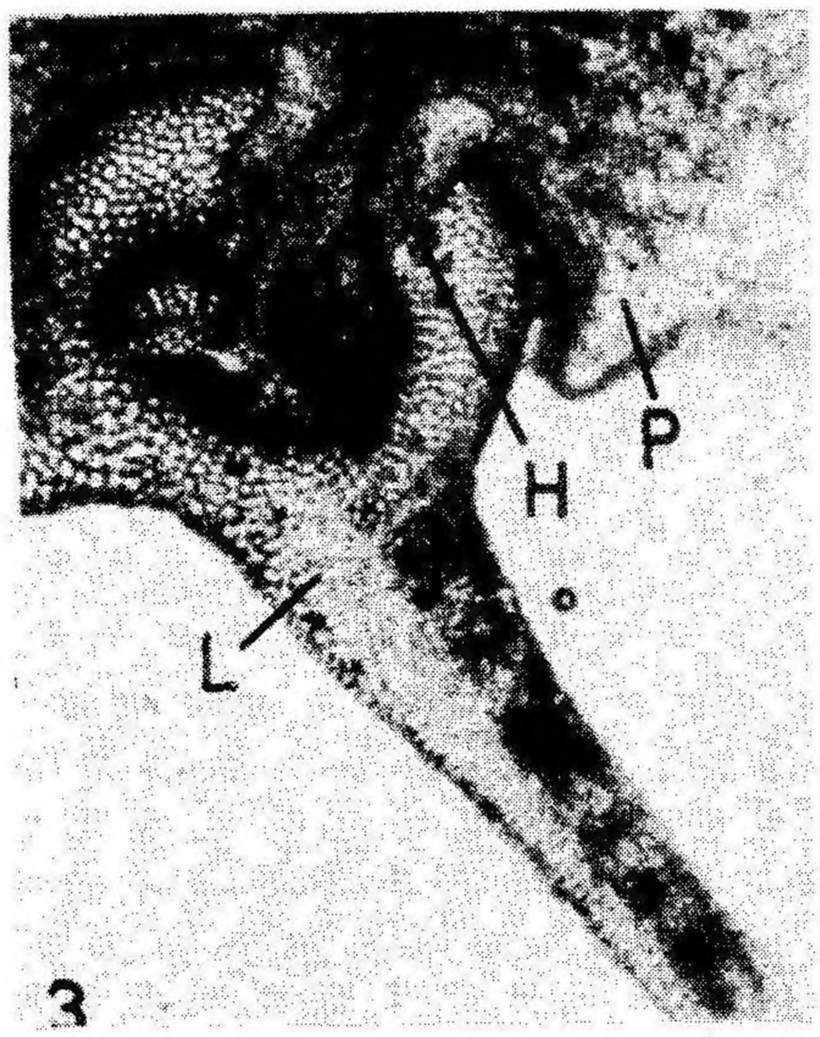

Fig. 3. T.S. of leaf showing haustorium x 25.

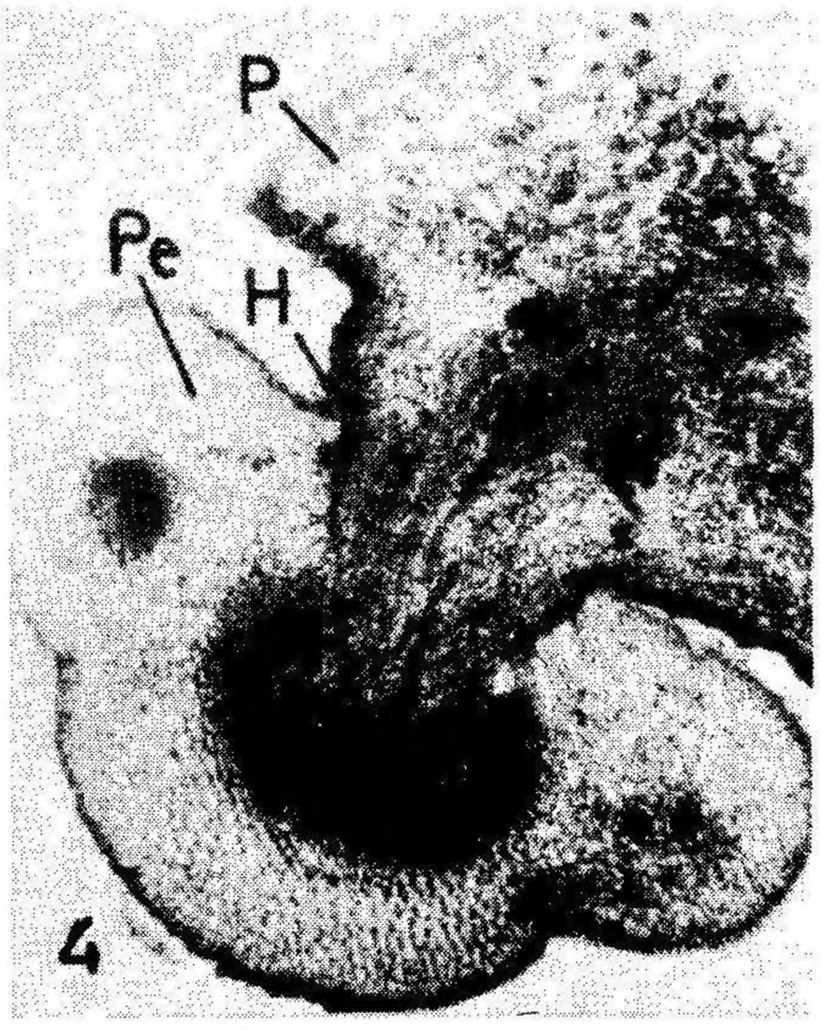

Fig. 4. T.S. of petiole and the parasite passing through the haustorium x 25.

R – Aerial root; P – Parasite; H – Haustorium; L – Leaf; Pe – Petiole.

sister branches of *Cuscuta* by Audus (1939) and Madhavan *et al.* (1982).

Thus, *Cuscuta* parasitises not only a single organ, stem, but also infects several other organs of the host with which it comes in contact. At times, it behaves as an auto-parasite as well (Madhavan *et al.*, 1982). In nature, infection on roots does not occur because of their underground nature. Hence instead of calling it a stem or root parasite it is appropriate to consider it as an "aerial parasite"

REFERENCES

PEIRCE G J 1893 On the structure of the haustoria of some phanerogamic parasites *Ann Bot.* **7** 291 - 327.

ΓHODAY M G 1911 On the histological relations between · *Cuscuta* and its host. *Ann Bot.* **25** 655 - 682.

AUDUS L J 1939 Self-parasitism in *Cuscuta* *Ann Bot.* **3** 761.

MADHAVAN, RAJESHWARI & S C GUPTA 1982. Self parasitism in Cuscuta -I- Anatomy *J Indian Bot Soc* **61** 289 - 294.