

the cell bodies of the secondary sensory cells. This interpretation is also advocated by Katsuki⁷ in his work on the effect of linearly rising currents on the lateral line end-organs. It now appears that there is a good case for applying the generator potential hypothesis to the whole of the vertebrate acustico-lateralis system, thus bringing the interpretation of its mode of function into line with that proposed by Granit and his co-workers for the retinal receptors or associated nervous structures in the eye.

Work on the quantitative analysis of stimulus response relationships with special reference to the adaptive behaviour of the end-organs is in progress. A full account of the results will be published elsewhere. The work was supported by a Royal Society Grant-in-aid of Scientific Investigations.

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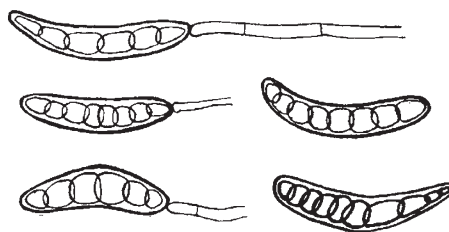
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Occurrence in Nature of an Alternative Host (*Leersia hexandra* Sw.) of *Helminthosporium oryzae* Breda de Haan

Helminthosporium oryzae Breda de Haan, the causal organism of sesame leaf spot of paddy, has not yet been found to attack any other Gramineae or other host plants in Nature with the single exception of *Oryza montana* from Togo reported by Roger¹. Ocfemia² and Nisikado and Miyake³ were able to obtain infection on a number of grasses under artificial conditions; similarly, Shaw⁴ noted infection under artificial conditions of inoculation on maize, sorghum, oats and barley; Tochinai and Sakamoto⁵ on maize, wheat, rye and barley; and Thomas⁶ on *Elusine coracana*, *Pennisetum typhoides*, *Setaria italica*, oats, maize, wheat and sugar-cane.

In the course of search for an alternative host of *Helminthosporium oryzae* in paddy fields at Chinsurah, we found a common perennial grass (*Leersia hexandra* Sw.) occurring in the bundhs of paddy fields with small oval spots of *Helminthosporium oryzae* type measuring 0.5–3 mm. × 0.5 mm. in size, deep brown in colour with greyish centre, on the leaf blades. The bits of infected leaf blades when kept in sterile moist Petri dishes for forty-eight hours after surface sterilization developed conidia of the *Helminthosporium oryzae* type measuring 33–125 μ × 9–19 μ with 5–9 septa, brown, straight to curved, cylindrical to elliptical, tapering towards both the ends, more so towards the apical end, without any prominent attachment region or hilum. They are borne on conidiophores measuring 150–350 μ in length and brown in colour.

The pathogen was isolated from the host in the usual way and monosporous cultures were made. Studies, under artificial conditions, of the culture were made to find out the relationship of the isolate



Helminthosporium oryzae. Conidiophores and conidia from the infected leaf of the grass *Leersia hexandra* Sw., Chinsurah, West Bengal. (× c. 300)

from grass with *Helminthosporium oryzae*. The isolate from the grass produced good mycelial growth on Richard's solution agar, oat agar and maize meal agar at 28–30° C. The mycelium was deep brown to black in colour with inconspicuous zonation. Conidia were formed on maize-meal agar. They were borne on conidiophores measuring 150–350 μ in length by 4–7 μ in breadth, dark brown in colour and arising as lateral branches from the vegetative hyphae. Conidia were cylindrical to elliptical, straight to curved, widest at the middle, tapering towards both ends which were rounded, brown in colour, measuring 33–130 μ × 9–18 μ with 5–11 septa averaging 84 μ × 14.6 μ with 6–8 septa. Germination of the conidia was found to be bipolar, germ tubes arising from the two end-cells. Microscopic observations revealed the presence of hyphal fusions between the isolate from the grass (*Leersia hexandra* Sw.) and *Helminthosporium oryzae* isolated from leaves of *Oryza sativa*, when grown beside it in 0.2 per cent agar on glass slide.

Pathogenicity tests were carried out on both the grass (*Leersia hexandra* Sw.) and paddy (variety Bhasamanik) with the isolate from grass as well as with *Helminthosporium oryzae* Breda de Haan, isolated from infected leaves of Asra variety of paddy at Chinsurah, West Bengal. On paddy the isolate from the grass readily produced infection. The spots produced were oval, younger ones being circular, deep brown in colour, with greyish centre, measuring 1–3.5 mm. × 0.5–1 mm. in size. On grass also, it produced similar infection. *Helminthosporium oryzae* isolated from Asra paddy produced spots on the grass *Leersia hexandra* Sw., brown in colour, circular to oval in shape, measuring 1–2 mm. × 0.5–1 mm. in size—similar to those produced on Bhasamanik variety of paddy by the same fungus. Re-isolations made in each of the cases of cross-inoculation, namely, from both the grass *Leersia hexandra* Sw. and *Oryza sativa*, inoculated by both the isolate from the grass and *Helminthosporium oryzae*, gave cultures identical to those used for infection.

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April 23.

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