

New Records

NEW GRAMINACEOUS WEED HOSTS OF *EPHELIS ORYZAE* SYD. IN WYNAD

During the first crop season (June-November) of 1978, there was moderately high incidence of udbatta disease caused by *Ephelis oryzae* Syd. (*Balansia oryzae-sativae* Hashioka) in rice at the Horticultural Research Station, Ambalavayal. In the course of investigation of the collateral hosts of this pathogen, two weed hosts showing typical earhead symptom of the disease were collected. These were later identified to be *Paspalum orbiculare* Forst and *Eragrostis nigra* Nees. These weeds were found growing abundantly in the field bunds and the adjoining areas of wetland. In 1979, during the first crop season, another graminaceous host of the pathogen showing typical earhead symptoms of udbatta disease was again collected from the field bunds. It was identified as *Alloteropsis cimicina* Stapf.

Detailed studies on the symptoms and morphological characters of the pathogen were made. The diseased plants of *Paspalum orbiculare* Forst was found considerably stunted in growth, showing lustrous greyish white appearance on the blades of upper leaves. The inflorescence was reduced in size and the spikelets were glued to one another with a sticky, viscid, substance to form a cylindrical structure. Normal inflorescence is loose, two to three branched, 5-6 cm long with spikelets arranged in two rows on one side of the rachis. But the diseased inflorescence was 3.2-4.2 cm long with cylindrical appearance. The pathogen invariably formed greyish white sclerotoid fungal masses on the infected spikelets which later tended to become black in colour.

Eragrostis nigra Nees normally has loose, many branched panicles measuring about 22-24 cm long but diseased ones were greatly reduced in size and the spikelets glued to the main rachis by viscid spore mass of the fungus resulting in a dark cylindrical structure of 15-17 cm long. Sclerotoid masses of the fungus was seen on the malformed structure. In cases of partial infection, it was seen that the spikelets of the upper end were free from infection and the lower spikelets were glued together to form an incomplete cylindrical structure. The affected plants were stunted in growth.

Alloteropsis cimicina Stapf is a very common weed growing in the bunds of wetland. Healthy plants have loose, 5-8 branched panicles of 9-12 cm long with light grey coloured spikelets whereas the panicles in affected plants measured about 6-8 cm in length with greyish to black sclerotoid masses of the pathogen on them. Stunting of growth and appearance of lustrous fungal growth on the upper leaves of infected plants were observed.

The morphological characters of all the three isolates were studied. Mycelium of the fungus in all these grasses was found to be septate, much branched, measuring 16.2–24.8 μ (mean 17.6 μ). Conidia were needle shaped, hyaline, aseptate, straight or slightly curved, and possessed prominent vacuoles. Conidia were produced abundantly in culture. Conidia from *Paspalum orbiculare* Forst. measured 10.2–28.3 μ (mean 17.6 μ) x 1.1–1.67 μ (mean 1.36 μ). The conidia from *Eragrostis nigra* Nees measured 10.2–27.8 μ (mean 17.8 μ) x 1.2–1.73 μ (mean 1.38 μ) and those from *Alloteropsis cimicina* Stapf measured 10.4–29.2 μ (mean 18.1 μ) x 1.18–1.79 μ (mean 1.42 μ).

The measurement of conidia of *Ephelis oryzae* from the diseased panicles of rice collected from Horticultural Research Station, Ambalavayal during 1978 was done and recorded. They were 10.4–29 μ (mean 17.5 μ) x 1.15–1.76 μ (mean 1.36 μ). Table 1 shows the size of conidia of *Ephelis oryzae* Syd. as reported by different workers.

Table 1
Size of conidia of *Ephelis* sp. on weed hosts and rice

Host	Length in μ (range)	Breadth in μ (range)	Mean length in μ	Mean breadth in μ	Source of authority
<i>Microstegium nudum</i>	11.28–27.26	1.12–1.88	19.82	1.69	Mohanty (1975)
<i>Leptochloa chinenses</i>	11.28–26.32	1.12–1.88	18.68	1.50	-do-
<i>Paspalum orbiculare</i>	10.20–28.3	1.10–1.67	17.60	1.36	Present study
<i>Eragrostis nigra</i>	10.20–27.8	1.20–1.73	17.80	1.38	-do-
<i>Alloteropsis cimicina</i>	10.40–29.2	1.18–1.79	18.10	1.42	-do-
<i>Oryzae sativa</i>	20–35	1.2–1.5		1.00	Sydow (1914)
"	12–22				Tai and Siang (1948)
"	17–28			1.75	Venkita- krishnaiya (1946)
	9.8–30.8		17.9	1.40	Govinda Rao & Reddy (1956)
"	16–23			1.00	Hashoika (1971)
tt	11.28–23.50	1.12–1.88	19.55	1.67	Mohanty (1975)
tt	10.4–29.8	1.15–1.76	17.5	1.36	Present study

From the table it can be seen that the size of conidia of *Ephelis oryzae* on rice ranged from 9.8-40 μ x 1-1.75 p . The size of conidia of the fungus recorded from the weed hosts fall within this range. Hence it is safe to refer to fungus of *Paspalam orbiculare* Forst., *Eragrostis nigra* Nees and *Alloteropsis cimicina* Stapf of the present study, to be *Ephelis oryzae* Syd. tentatively.

Earlier reports on the morphological characters of *Ephelis oryzae* and existence of graminaceous plants as weed hosts of the same are available (Sydow, 1914; Venkatakishnaiya 1946; Tai and Siang, 1948; Govinda Rao and Reddy, 1956; Hashioka, 1971 and Mohanty, 1975). But it appears that *Paspalam orbiculare* Forst., *Eragrostis nigra* Nees and *Alloteropsis cimicina* are new hosts of *Ephelis* sp.

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സംഗ്രഹം

നെല്ലിനെ ബാധിക്കുന്ന കമ്പിത്തീരി (ഉദ്ബന്ധം) രോഗത്തിന് നിദാനമായ കുമിൾ ചില പുല്ലുകളിലും ഈ രോഗം വരുത്തുന്നതായി ഈ ഗവേഷണ കേന്ദ്രത്തിൽ നടത്തിയ പഠനാവസരത്തിൽ തെളിഞ്ഞു. മൂന്നിനം പുല്ലുവർഗ്ഗത്തിൽപ്പെട്ട ചെടികൾ ശേഖരിക്കുകയും അതിലുള്ള കുമിളിന്റെ വിവിധ പാഠങ്ങൾ നടത്തിയതിൽ നെല്ലിനെ ബാധിക്കുന്ന കുമിൾ തന്നെയാണിതെന്ന് മനസ്സിലാക്കി. ഇത് ഇദംപ്രഥമായ റിപ്പോർട്ടാണ്.

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