A NEW RUST ON *ELAEOCARPUS TUBERCULATUS* ROXB. FROM IDUKKI, KERALA, INDIA

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DURING a survey and study of the rusts of Idukki, Kerala, it was observed that the stems and the peduncles of *Elaeocarpus tuberculatus* Roxb. were studded with several brown and sessile galls. The galls were of different shapes and sizes. When the galls were disturbed, spores were blown out of them in the form of clouds. The galls were persistent even after they were devoid of spores though they dropped out ultimately along with the host parts. Infected inflorescences did not produce any flowers. No infection was observed on the leaves.

Aecidium elaeocarpi-tuberculatae Hosagoudar sp. nov.

Pycnia, uredinia et telia ignota. Aecia gallas ligneus infossa, brunnea, profunde incidentia, cuppulata, erumpentia, 387–756 × 360–450 μm; peridium fragilis, cellulae peridii uni vel bistratae, hyalinae ad aureobrunnae, lateraliter compressae, 46–60 × 8–18 μm; parietis subhyalinus ad subbrunneous, 2–3 μm crassus, distincte echinulatus. Aeciosporae saturate aureo-brunneae, catenulatae, clavatae, fusiformes ad obovoideae, 40–60 × 16–28 μm; parietis brunneus, 2–3 μm crassus, distincte echinulatus.

Holotypus: In caule et pedunculi de *E. tuberculatus* Roxb. Sylvum secus viam inter Painavu et Kulamavu, Februarius 25, 1983; A. Diraviadoss, BSI/ISV/75013 (Positus in Botanical Survey of India, Coimbatore, India).

Isotypus: In Osmania University, Hyderabad, India (Num. Acc. RHOU 504/Coim.)

Pycnia, uredinia and telia unknown. Aecia in the woody galls, deep seated, brown, cupulate, erumpent, 387–756 × 360–450 μm; peridium fragile, peridial cells in 1–2 layers, hyaline to golden-brown, laterally pressed, 46–60 × 8–18 μm; wall distinctly echinulate. Aeciospores deep golden-brown, catenulate, clavate, fusiform to obovoidal, 40–60 × 16–28 μm; wall brown, 2–3 μm thick, distinctly echinulate.

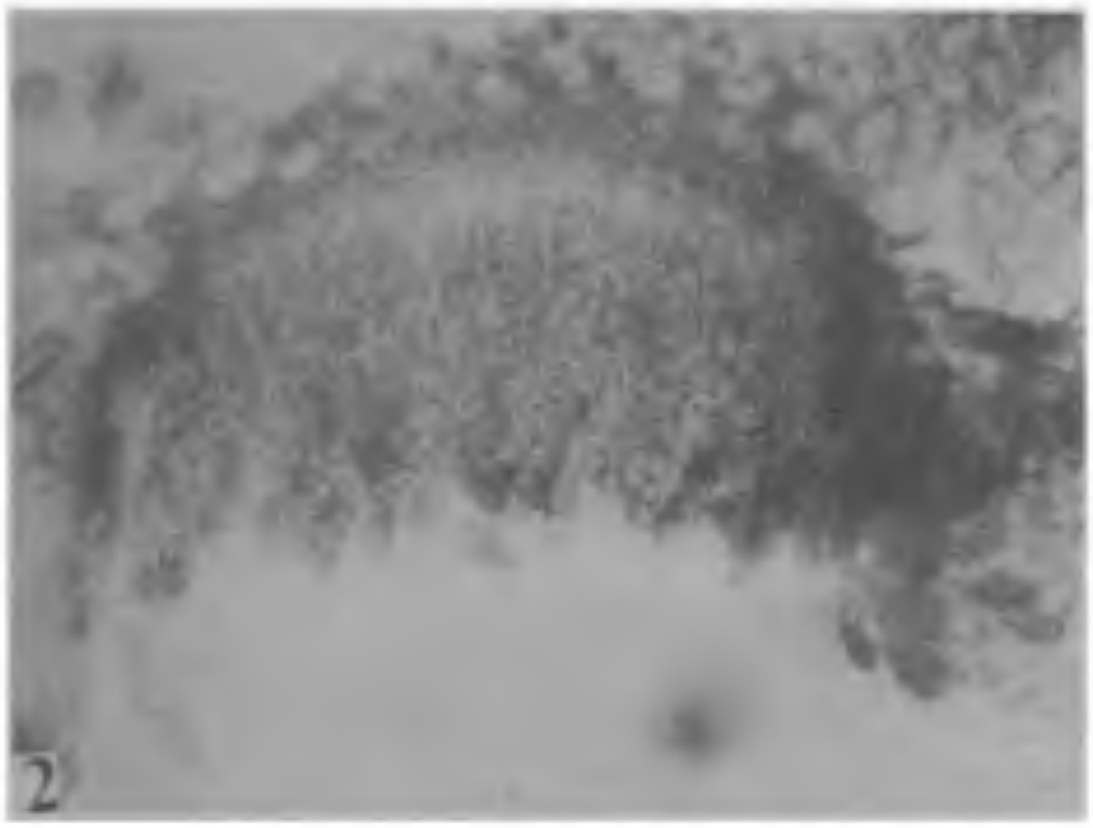
Holotype: On the stem and peduncles of *Elaeocarpus tuberculatus* Roxb., Painavu Kulamavu Road forest, February 25, 1983; A. Divaviadoss, BSI/ISV/75013.

Isotype: Osmania University RHOU No. 504/Coim. (figures 1–3)

Figure 1. Infected host showing galls on the stem.

Table 1 *A comparative account of the present rust and A. elaeocarpi*

Name of the fungus	Galls	Aecidium	Aeciospores	Aeciospore wall
A. elaeocarpi	On leaves and stems, 2–10 mm in diameter	700–900 × 350 μm	44 × 18–24 μm	Minutely verrucose
A. elaeocarpi-tuberculatae	On stems and peduncles, 1–4 inches in diameter	387–756 × 360–450 μm	40–60 × 16–28 μm	Prominently echinulate



Figures 2 & 3. 2. V. S. of Aecial cup. **3.** Aeciospores.

So far three species of *Aecidium* have been reported on *Elaeocarpus* L. namely *A. puspa* Racib., *A. elaeocarpi* Racib. and *A. elaeocarpicola* Cummins. *A. puspa* is an aecial stage of *Puccinia puspa* Racib. Among all these three species only *A. elaeocarpi* Racib. produces galls on leaves, stem and branches[1,2]. The present fungus differs from it in possessing the smaller aecial cups, larger aeciospores and in producing bigger galls of different sizes (1–4 inches in diameter) only on stems and peduncles but not on the leaves.

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NITRIFICATION POTENTIAL IN SUCCESSIONAL COMMUNITIES AND DESERTIFICATION OF CHERRAPUNJI

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Soil nitrogen dynamics during successional development of ecosystems has been a matter of considerable debate since the work of Rice and Pancholy[1] who suggested that nitrification gradually slowed down in more mature communities due to allelopathic effects in the soil. Such a trend in nitrification was supported by others[2] and it was even suggested that preference for ammonium nitrogen by late successional communities would help in conserving the otherwise more labile nitrate-nitrogen[3,4]. More recently this hypothesis has been questioned[5] on the basis that nitrate/ammonium level and population size of nitrifiers may not always be indicative of the relative rates of nitrification. Perhaps, it may be worth looking at both soil nitrogen pool and nitrifying potential[6] to arrive at more valid conclusions in this regard.

The study sites at Cherrapunji (25.1°N and 91.5°E) are at an elevation of 1200 m in the Khasi Hills of north-eastern India. The area is characterized by high rainfall (monsoonic) with an average annual of 1150 cm and with an above average going upto 2250 cm in an exceptional year as in 1974. The area is generally highly degraded due to a combination of geologic, climatic and anthropogenic factors of which slash and burn agriculture (jhum) in the past is an important causative factor[7]. The different grassland types represent this degradation into arrested succession with relict vegetation in sacred groves indicative of the climax type[8]. The present study deals with a comparative assessment of nitrification potential of seral grassland types with the climax forest represented by a sacred grove.

Three grassland types (referred to as 1, 2 and 3, of increasing levels of disturbance) and a protected sacred grove forest were identified. Grassland 3 had *Drocera* sp., *Carex cruciata*, *Bulbostylis* sp. *Cyperus* spp. and *Eriocaulon brownianum*. Grassland 2 had *Anaphalis*