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SHORT COMMUNICATION

Occurrence of Leaf rust of *Tectona grandis* caused by *Olivea tectonae* in Odisha

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Teak (*Tectona grandis* L.) is a tropical hard wood tree species in family Lamiaceae. It is a large deciduous tree which is dominant in mixed hard wood forest. *Tectona grandis* is native to South and South East Asia mainly India, Indonesia, Malaysia, Thailand and Burma. Leaf rust of *Tectona grandis* caused by *Olivea tectonae* was found in Bhubaneswar causing severe damage to the foliage during October, 2013. The rust infection appeared first on matured lower leaves during August-September and it proceeded upwards reaching up to the top leaves. Pustules of orange yellow colour urediniospores appeared profusely on the under surface of matured leaves especially on the adaxial surface near the mid rib leaf. On the upper leaf surface the symptom appeared as small, angular, brown and gray necrotic lesions on the adaxial leaf surface. The hyper parasite *Acremonium* sp. was commonly associated with the rust spores and imparted white patchy growth on the underside of infected leaf. Orange yellow coloured urediniospores were released in groups which were subglobose to slightly ellipsoidal measuring 9.48-10.98 µm (avg 10.34 µm) and 10.61-14.12 µm X 8.59-10.37 µm (avg 12.0-9.53 µm) respectively.

**Key words:** *Tectona grandis*, Leaf rust, *Olivea tectonae*, Odisha

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Teak is naturalized and cultivated in many countries in Africa and Carribean. It is economically very important for its good quality timber. Teak timber is particularly valued for its durability and water resistance and is used for boat building, exterior construction, veneer, furniture carving, turnings and other small wood projects (<http://en.wikipedia.org/wiki/teak>). In ship building teak is particularly irreplaceable due to its resistance to sun, heat, cold, rain and sea water (Rondon Neto *et al*, 1998).

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A number of foliar pathogens viz, *Cercospora lippiae*, *Corynespora nana* and *Uncinula tectonae* attack teak leaf both in seedling and grown up stage. Fungi like *Applosporella cesati*, *Dial. ype tectonae*, *Phomopsis tectonae* and *Phomopsis variosporum* attack tender twigs of teak in the plantation (Verma *et al.* 2008). Teak leaf rust, a serious leaf disease caused by *Chaconia tectonae* (T.S. Ramakr. and K. Ramakr.) was first reported in India by T.S. Ramakrishnan and K. Ramakrishnan in 1949. Later the causal organism was renamed as *Olivea tectonae* (T.S. Ramakr. and K. Ramakr.) R.L. Mulder (<http://www.mycobank>).



Fig. 1 : *Tectona grandis* (Teak) infected with leaf rust



Fig. 4 : Subglobose and ellipsoid urediniospores of *Olivea tectonae* (10X)



Fig. 2 : Urediniospores of rust on adaxial under surface of teak leaf with white colour growth hyperparasite (*Acremonium* sp.)



Fig. 5 : Subglobose and ellipsoid urediniospores of *Olivea tectonae* (40X)



Fig. 3 : Necrotic patches on adaxial leaf surface (Upper side)

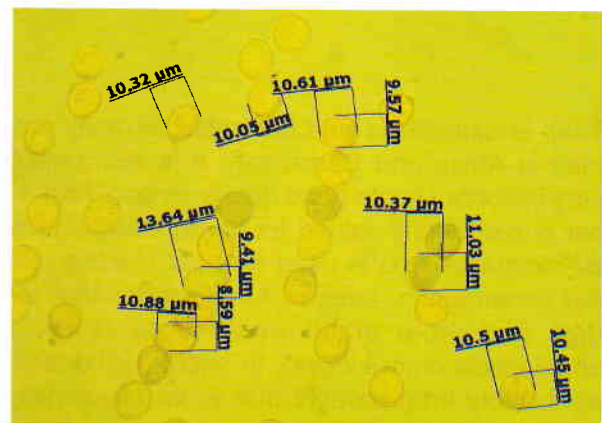


Fig. 6 : Subglobose and ellipsoid urediniospores of *Olivea tectonae* (40X)



Severe leaf rust of teak was noticed in the grownup teak plantation and also very young plants (four feet height) during a survey in the campus of Orissa University of Agriculture and Technology, Bhubaneswar during October, 2013 (Fig. 1). The rust infection appeared first on matured leaves during August-September and as the younger leaves matured it proceeded upwards reaching upto the top leaves. Pustules of orange yellow colour urediniospores appeared profusely on the under surface of matured leaves especially on the adaxial surface near the mid rib leaflets (Fig. 2). On the upper surface of leaf the symptom consisted of small angular to brown and gray necrotic areas on the adaxial leaf surface.

The hyper parasite *Acremonium* sp. was commonly associated with the rust spores and imparted white patchy growth on the underside of infected leaf (Fig. 2). As the disease progressed the lesion enlarged and coalesced to form larger necrotic area (Fig. 3).

The infected leaves were collected in polythene bags and carefully observed in light microscope in the laboratory. Microscopic analysis revealed the presence of sub epidermal eruptent uredinia. Or-

ange yellow coloured urediniospores were released in groups which were subglobose to slightly ellipsoidal measuring 9.48-10.98  $\mu\text{m}$  (avg 10.34  $\mu\text{m}$ ) and 10.61-14.12  $\mu\text{m}$  X 8.59-10.37  $\mu\text{m}$  (avg 12.0-9.53  $\mu\text{m}$ ) respectively and was identified as *Olivea tectonae* with available literature (Fig 4,5,6). Rust sori became whitish due to infection by hyperparasites *Acremonium* sp. on the undersurface of every infected leaf. Mycelia colonizing rust spores were thin, hyaline, smooth walled septate branched. Conidiophores arising from mycelium and wrapping rust spores were erect, smooth walled, hyaline. Conidia were hyaline, smooth, aseptate and slightly curved. The pathogen *Olivea tectonae* was first isolated in Odisha to cause extensive damage in teak plantation.

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