

## **Characteristic and pathogenecity changing of *Uromycladium tepperianum* on *Falcataria moluccana* affected by pyroclastic cloud from merapi volcano, in Yogyakarta, INDONESIA**

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*Falcataria moluccana* (sengon) is mostly planted monoculturally in community forests at valley of Merapi volcano Sleman, Indonesia. The presence of gall rust disease caused by the rust fungus, *Uromycladium tepperianum*, is able to reduce sengon productivity. The disease causing severe damage to all growth stages of the plant from seedlings in the nursery to mature trees in the field. Group of rust fungi have strong mechanism for adaptation and change their pathogenecity under critical condition, including very high or low temperature, relative humidity and also strong wind pressure. The objectives of the research were to determine the morphological characteristics, survival and pathogenecity of *U. tepperianum* in sengon affected by pyroclastics cloud conditions after Merapi eruption in November 2010.

Inoculums of *U. tepperianum* were taken from sengon trees in the Southern hill of Merapi volcano which showed symptoms of gall on 3 different distance of area affected by pyroclastic cloud, i.e. danger area (3-7 km), alert area (>7-11 km) and warning area (>11-15 km) from the top of Merapi. Three areas or locations from each distance then were randomly choose, namely fire location (directly affected), border locations (indirectly affected) and green location (completely uninfluenced) by pyroclastic cloud. Based on artificial inoculation test, pathogenecity of each inoculum were observed, while germination, penetration and infection ability of each inoculums were accessed using free hand section of disposable samples in order to get microscopic samples, and acquired using scope photo software. The color, size and shape of teliospore as well as texture and color of gall were observed using qualitative and quantitative assessment.

Survival and aggressiveness of *U. tepperianum* in the fire were lower than in the border or green location in all area includings danger, alert and warning area. However, in the border location it self, the spores of *U. tepperianum* has more pathogenic, represent by higher percentage of germination, penetration, and infection also their ability to form the gall symptom than in the fire and green locations. This result was also supported by the characteristic of teliospores that were bigger, brighter, had better integrity shape (round) in the border location. In addition, *U. tepperianum* also had high ability to induce gall become bigger than in the fire and green locations. One of obvious case due to local environmental changing caused by Merapi eruption was the increasing of aggressiveness of the gall rust disease caused by *U. tepperianum* on *F. moluccana*.

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