

INSECTS AND DISEASE INCIDENCES OF ORGANICALLY AND CONVENTIONALLY MANAGED TEA IN QUEENSBERRY ESTATE, SRI LANKA

N.M.H.H. Nawarathna¹, W.M.R.S.K. Warnasooriya¹, U.G.A.I. Sirisena¹,
V.A.T. Prabashwara² and S. Nanayakkara²

¹*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.*

²*Dilmah Conservation, Dilmah Ceylon Tea Company PLC, Negombo Road, Peliyagoda, Sri Lanka.*

The growing trend of organic agriculture has boosted organic tea cultivation. The present study compared insect abundance, insect diversity and disease incidences of organically and conventionally managed tea plantations in Queensberry estate, Sri Lanka. Four treatments; T1: organic with zero input, T2: conventional, T3: Organic with aqueous leaf extracts of *Cymbopogon nardus* and *Tithonia diversifolia* in 1:1, 2.5 L ha⁻¹ and T4: organic with aqueous leaf extracts of *Eucalyptus grandis* and *Artemisia vulgaris* in 1:1, 2.5 L ha⁻¹, with three replicates were arranged in RCBD. Shannon and weaver index (H), Simpson index (D) and Percent Disease Index (PDI) were used to assess the diversity and abundance of insects and disease severity, respectively. Data were analysed using ANOVA and means were separated by LSD using SAS software. The T1 resulted a significantly ($p=0.0013$) higher mean PDI value for Blister Blight (*Exobasidium vexans*), whereas T2 showed a significantly higher mean PDI ($p=0.0004$) value for Bird's Eye Spot (*Cercospora theae*) and Stem Canker (*Phomopsis theae*) ($p=0.0022$). There were no significant differences ($p>0.05$) of H and D values in all treatments in both above and below ground level. Twelve insect families belong to five orders and nine insect families belong to seven orders were recorded from above and below ground, respectively. The family Muscidae and Gryllidae were highly abundant in both above and below ground, respectively. Aphids were more abundant tea pests in T3 and T4, while it was Tea Tortrix and Aulacophora in T1 and T2, respectively. In conclusion, both conventional and organic tea with zero inputs were comparable for insect abundance and diversity and disease incidence. Aqueous leaf extracts had effectively controlled fungal diseases and insect populations including tea pests. Bio efficacy, dosage and non-target effect of aqueous leaf extracts need to be assessed prior to popularize it commercially.

Keywords: *Artemisia vulgaris*, Blister blight, *Eucalyptus grandis*, Insect abundance, Insect diversity