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Paper: Sustainability

Kiromonal activity of ethyl acetate extract from rotted tea stems for low country live wood tea termite *Glyptotermes dilatatus* Bugnion & Poppof (Isoptera: Kalotermitidae)

Many insects use kairomones to locate their host plants. It has been reported that alates of low country live wood termite are attracted to rotted stumps and initiate the colony in rotted tea stumps. Therefore, the investigation of kairomones emit by rotted stumps of tea cultivars is suggested in this study.

Crude materials of healthy stems, rotted stems and leaves were tested against alates using the choice chamber (four arms). The results showed that rotted stems were more effective than healthy stems and leaves. Ethyl acetate extracts of rotted tea stems and healthy stems of susceptible cultivar TRI 4042 were tested to evaluate the behavior of alates using 'y' shaped olfactometer. The results revealed that extract of rotted stem extract was attractive (9 ± 2.7) significantly when compared with healthy stem extract (1.8 ± 0.84).

Production of kairomone of rotted stems is primarily due to decay of stems by the wood rot fungi. Therefore, wood rot fungi have been isolated and identified using identification keys. Fifteen species of wood rot fungi have been isolated from rotted tea stumps. They were identified as *Acremonium* spp (3 species), *Mortierella* sp., *Cylindrocarpon* sp., *Fusarium* spp (2 species), *Trichoderma* spp (2 species) *Aspergillus* sp., *Penicillium* sp., White sterile spp (2 species), Black sterile spp (2 species).

Ethyl acetate extracts of wood rot fungi (*Acremonium* sp. (177 mg). and black sterile sp.1 (182 mg) grown in potato dextrose agar were tested against ethyl acetate extract of rotted tea stems in "Y shaped olfactometer. It was shown that fungal extract were not attractive to termite alates. Ethyl acetate extracts of rotted stems of tea cultivars TRI 4042 (786.9 mg), TRI 4049 (2.3 g), TRI 2023 (3.3 g), TRI 2027 (1.1 g) were fractionated using hexane, chloroform, aqueous methanol (80%). Hexane fraction of TRI 4042 was tested in orientation bioassays. Hexane fraction was more attractive (7 ± 3.6) significantly than CHCl_3 and aqueous MeOH fractions. Therefore, hexane fraction was further fractionated using silica gel column chromatography to identify the bio active compounds.