

CONSUMPTION RATE AND TRANSFER EFFICIENCY BY TERMITE *Coptotermes* sp. OF ORGANIC WASTE-BASED FOOD FOR BAIT FORMULATIONS

Musrizal Muin, Astuti Arif, Sitti Nuraeni, Heru Arisandi, Wa Ode Fatima Zohra
Fakultas Kehutanan, Universitas Hasanuddin
musrizal@unhas.ac.id

ABSTRACT

The potential of utilizing organic waste mixtures as food attractants for termite control were evaluated. Mixture formulations of degraded pine wood, various paper wastes, and soybean boiled water were served as food sources for termite *Coptotermes* sp. and determined their consumption rate and the termite food transfer efficiency. For the purpose of the study, four formulations with equally mixed materials based on their oven-dried weights were prepared. The bait formulations consisted of: (1) the mixture of degraded pine wood and HVS wastepaper, (2) the mixture of degraded pine wood with HVS and newsprint wastepaper, (3) the mixture of degraded pine wood with HVS and cardboard wastepaper, and (4) the mixture of degraded pine wood with HVS, newsprint, and cardboard wastepaper. The mixture formulations were shaped to the size of 2 cm x 2 cm x 1 cm with the target density of 0.5 g/cm³. Prior to bioassay tests, the shaped mixture formulations were dipped in the prepared soybean boiled water to have the sample moisture content of 50-70%. The termite consumption rate and food transfer efficiency were evaluated using no-choice test in the laboratory. The food transfer efficiency among termite cohorts was studied and monitored using test samples dyed with 0.1% Nile Blue A. All experimental units were placed in a dark room and kept at around 28°C and over 70% relative humidity. Results showed no significant difference on termite consumption and survival rate among the tested food formulation. However, food transfer efficiency by termites on the mixture of degraded pine wood and HVS wastepaper with the addition of soybean boiled water was higher compared to other formulations. In general, this study indicates that all of the food formulations are potential attractants for the termites, but it suggests the need of field research in order to develop effective bait formulations.

Keywords: Termite consumption and survival rate, food transfer efficiency, *Coptotermes* sp., bait formulation, wastepaper.