Effect of Nutmeg Peel Extracts on Survival of Aphids (Hemiptera: Aphididae) on Chilli

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Nutmeg (*Myristica fragrans* Houtt.) peel is the outermost fleshy part of the fruit and accounts for almost 80% of the total fruit weight; however, it carries less economic importance compared to the mace and kernel. During the harvesting season, the nutmeg peel is discarded in large quantities as a waste. The current study is aimed to evaluate the potential of using an aqueous extract of nutmeg peel as an insecticide for controlling aphids in chilli. An aqueous extract of the peel was prepared using cleaned, mature, and fresh fruits. The peel extract was diluted to prepare a concentration series of 100%, 75%, 50%, 25% and 12.5%. A plant house experiment was set following a completely randomized design layout with ten replicates for each of the five treatments along with a control. Ten adult aphids (*Aphis fabae*) were introduced to each chilli plant and the peel extract was applied using a hand sprayer ensuring even coverage of the entire plant. The number of aphids that survived after 24-hrs and 48-hrs after the treatment were counted. An analysis of variance was conducted for the survivability of aphids and a mean comparison was conducted using the Fisher LSD test at 0.05 significance level. Results of the experiment revealed significantly (p=0.000) lower aphid survival when they were treated with 100%, 75%, and 50% peel extracts compared to the control at both observational points, and there was no significant (p>0.05) difference among those three treatments. Hence, an aqueous extract of nutmeg peel (up to a 50% dilution), has a potential to be developed as a botanical pesticide to control aphids. Processing the peel extract into a botanical pesticide will add economic value to the nutmeg peel and can be further investigated to uncover its potential as a pesticide.

Keywords: Agricultural waste, Botanical pesticide, Nutmeg peel, Pest control

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