

Effect of Plain and Nano Emulsions of Tree Borne Oil Seed Protectants on Bruchids (*Callosobruchus Maculatus*) in Blackgram

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ABSTRACT

A laboratory investigation was carried out to assess the efficacy of plain and nano emulsions of tree borne oils (neem and pongamia) seed protectants against bruchids, *Callosobruchus maculatus* (Linnaeus) as surface treatment of both uninfested and infested black gram seeds @10ml.kg⁻¹ at Tamil Nadu Agricultural University, Coimbatore during 2014. Of the two forms of tested tree borne oils uninfested seeds treated with plain forms (0.0 adults/week/250g seeds) were superior over nano emulsions each of which had significantly higher numbers (0.4 adults/week/250g seeds). Treated uninfested seeds when reintroduced with another 10 bruchids after eight weeks of observation were found dead within a week time indicating the persistence effect of plain oils of neem and pongamia in killing all the introduced adults but nano emulsions of neem and pongamia oils promoted the emergence of 83.5 and 44.7 adults per week per 250g seeds. In case of infested seeds, nano emulsion of neem and pongamia oils were found to favour the insect development. Uninfested seeds treated with plain and nano formulations of neem and pongamia oils had 93 and 92 percentage germination while infested seeds, treated with nano pongamia oil (72%) and nano neem oil (60%) exhibited low germination.

Key words : *Callosobruchus maculatus*, Efficacy, Germination, Infestation, Mortality rate, Nano emulsions, Neem oil, Pulses, Pongamia oil.