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Insecticidal activities of *Piper betel* essential oil

Insect damage in stored grains and pulses is a major problem in countries where modern storage technologies are not introduced. Currently, measures are taken to control pest infestation in grain and dry food products by heavy use of gaseous and liquid insecticides. These pose health hazards and environmental contamination. Therefore, the attention is now focused on plants as a source of alternative insecticides. House fly is a major pathogenic vector in tropical countries. Ticks are important ectoparasites of livestock in tropics.

Essential oil of *Piper betel* was tested against some insect species, *Musca domestica* (House fly), *Sitophilus oryzae* (Rice weevil), *Callosobruchus sp.* (Pulse brochid) and tick (*Ixodes pacificus*) for their knock-down and mortality effects. (Ticks *wewa* supplied by Dr *kala Santha*) WHO standard method was employed for the bio assays.

A filter paper was impregnated with betel oil solution and air dried. The filter paper was placed in a conical chamber and house flies were introduced. For rice weevil, pulse beetle, and ticks, filter paper containing test solution was placed in a Petri dish. And insects were introduced. After 1h numbers of knocked-down insects were counted and after 24 h the mortality was calculated.

1% (v/v) betel oil solution in ethanol showed 100% knock-down and mortality against *M. domestica*, *S. oryzae* and *Callosobruchus sp.* 0.5% (v/v) solution was weakly toxic against *Callosobruchus sp.* while 2.5% (v/v) solution showed 100% mortality against ticks. This study showed that *P. betel* leaf oil has promising insecticidal properties against the species tested.