

*Sri Lanka Association for the  
Advancement of Science*



**Proceedings of the  
57<sup>th</sup> Annual Session**

*(26 November – 01 December, 2001)*

**PART I – Abstracts**

*Sri Lanka Association for the Advancement of Science - 2001*

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aromaticus

Bioactivity of the essential oil of *Cymbopogon citratus* (Lemongrass) on *Sitophilus oryzae* (L) (Coleoptera: Curculionidae) [Rice Weevil]

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aracnose and  
due to post-  
enzimidazole  
re control of  
nd crown rot  
is caused by  
*asiodiplodia*

*Sitophilus oryzae* is the most destructive and common insect pest in rice and paddy. At present, Phosphine and pirimiphos methyl, are used to control this pest. Synthetic pesticides cause various problems and to overcome them, it is necessary to look into alternative methods.

est treatment  
nd identified  
with volatile  
uds of clove  
cidal activity

The objective of the present study was to evaluate the insecticidal and / or repellent action of essential oil of *C. citratus* against *S. oryzae*. The essential oil of *C. citratus* was used for the choice tests and toxicity bioassays.

*illetotrichum*  
35%- 0.06%  
ely.

The repellent activity of the essential oil of lemongrass was studied using the olfactometer and Choice Chamber bioassays. The olfactometer bioassay showed a significantly higher repellent activity of test insect at doses higher than 75 mg of essential oil, whereas the results obtained from the Choice Chamber bioassay showed no significant repellence when compared to the control. The fumigant toxicity test showed about 90% mortality at 2.5 g/L concentration of essential oil and in the contact toxicity bioassay more than 80% mortality was observed at the concentration of 26 g/m<sup>2</sup>. The LC<sub>50</sub> values of the essential oil due to the fumigant and the contact effects were 1.14 g/L and 7.8 g/m<sup>2</sup> respectively. These two studies showed that the contact toxicity is more effective than fumigant toxicity.

All four bioassays revealed the repellent and fumigant potential of *C. citratus*. The test oil could be developed as a biopesticide to control *S. oryzae* in stored rice and paddy.

Financial assistance by NSF (grant no. RG/2000/C/01) and TWAS is acknowledged.

\* 033-55298

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**Insecticidal and repellent activity of volatile leaf constituents of - *Azadirachta indica* (A.Juss) [Neem] against *Callosobruchus maculatus* (L) inhabiting stored cowpea**

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Bioassays were carried out to assess the efficacy of neem leaf volatile compounds using fumigant toxicity, contact toxicity and Choice Tests to manage *C. maculatus* in cowpea. The results of fumigant toxicity and the contact toxicity of neem leaf volatiles showed that 100% mortality could be achieved at concentrations higher than 0.52 g/L and 1.98 g/m<sup>2</sup> respectively on 3<sup>rd</sup> day after treatment. The LC<sub>50</sub> value of neem leaf volatile due to fumigant toxicity and contact toxicity were 0.35 g/L and 1.07 g/m<sup>2</sup> respectively.

The repellent activity of neem leaf volatiles was investigated using Choice tests. The results obtained from the Olfactometer test revealed percentage of bruchid responded was significantly low (less than 27%) at doses higher than 80 mg when compared to control (73 %). During the Choice Chamber test insects in all treated samples showed repellent activity against neem leaf volatiles. In cowpea seeds treated with neem leaf volatile at dose of 160- 40 mg, the mean number of bruchid moved was 0-3 (p<0.001) where as control and ethanol treated samples showed the movement of 36 and 29 mean numbers of bruchids respectively. At the higher doses (160 - 80 mg) the number of eggs laid was zero. Significantly higher number of eggs (< 80) was laid in control and ethanol treated samples.

Financial assistance by CARP (Research Grant number CARP 12/440/329) is acknowledged.

\*  053-55298