EFFICACY OF PLANT EXTRACTS AGAINST MOSQUITOES

LARVICIDAL ACTION

- Among the screened plants, four plant species viz Annona squamosa, Calotropis procera, Jatropha glandulifera and Lantana camara showed significant activity against targeted mosquitoes.

- Leaf extract of J. glandulifera was found to be effective against the IV instar larvae of *Ae. stephensi* with LD$_{50}$ and LD$_{90}$ values of 184.42 ppm and 281.80 ppm respectively.

- Leaf extract of *Calotropis procera* was found to be most effective against the IV instar larvae of *Ae. stephensi* with LD$_{50}$ value of 281.18 ppm as compared to LD$_{50}$ values of 344.99 ppm and 454.67 ppm towards the larvae of *Ae. aegypti* and *Cx. quinquefasciatus*.

- *Lantana camara* leaf extract was more effective against *Ae. aegypti* compared to other mosquito species, with LD$_{50}$ and LD$_{90}$ values of 310.17 ppm and 729.58 ppm respectively.

- Leaf extract *Annona squamosa* was highly effective against all the three vector mosquitoes.
• Second instar larvae of *An. stephensi* were highly susceptible to the leaf extract of *Annona squamosa* with LD$_{50}$ and LD$_{90}$ values of 45.46 ppm and 83.86 ppm.

• Leaf extract of *Annona squamosa* was found to be most effective against second instar larvae of *Ae. aegypti* with LD$_{50}$ and LD$_{90}$ values of 43.45 ppm and 91.51 ppm respectively.

• *Cx. quinquefasciatus*, particularly second instar larvae were found to be most susceptible towards the leaf extract of *Annona squamosa*. It requires only 19.01 ppm and 34.68 ppm concentrations to get 50 and 90 % larval mortality, respectively.

• It is concluded that among the four plant species identified from preliminary screening, *A. squamosa* is the most effective plant extract against all the larvae of all the three target mosquito species.

**Growth regulating action**

• It is observed that the extracts obtained from different parts such as stem, leaf and root of *A. squamosa* suppress the population build up in
the all the three mosquito species to considerable extent at different doses.

- *A. squamosa* extracts were more effective against *Cx. quinquefasciatus* at lower doses than *An. Stephensi* and *Ae. aegypti*. Leaf extract exhibited more pronounced effect on development of *Cx. quinquefasciatus*, as it controls the population by 69% at just 25 ppm concentration.

**EFFICACY OF *T. PURPUREA* EXTRACTS AGAINST *T. CASTANEUM*.**

- It was observed that leaf, seed and stem extracts of *T. pupurea* showed no ovicidal action whereas, root extract at concentrations of 10, 20 and 50 mg caused 10, 35 and 55 per cent mortality in eggs, respectively.

**Larvicidal action.**

- Root extract exhibited pronounced larvicidal action against the last instar larvae of *T. castaneum*. 
• 1 µl dose of 2 % root extract caused 30 % mortality while 2 µl dose of 2 % root extract caused 40 % larval mortality in *T. castaneum*.

**Pupicidal action.**

• Among the four different extracts tried, root extracts of *T. purpurea* proved to be most effective against the larvae of *T. castaneum*. Thus root extract alone is effective in controlling pupal population of *T. castaneum*.

• 2 µl dose of 2 % root extract of *T. purpurea* induced 47.5% mortality in *T. castaneum* pupae.

**Growth regulating action**

• Leaf and root extracts of *T. purpurea* were found to be most effective towards inhibiting development of *T. castaneum*

• Growth indices of *T. castaneum* were found to be 1.08 and 1.05 respectively as compared to 3.12 in control, indicating the potential of these extracts in controlling the population.
Further studies on isolation of specific active principles from the crude extracts of *Annona squamosa* and *Tephrosia purpurea* may prove to be highly useful.