D – 17

We have previously shown that caffeine is anti-fungal to the symbiotic fungus, *Monacrosporium ambrosium* of the shot-hole borer beetle, *Xyleborus fornicatus* and that it reduces progeny and prolongs life cycle stages. The present work was aimed at studying the mode action of caffeine on the beetle.

Adults female surface sterilized beetles were introduces into boiling tubes with culture media, prepared by a modification of Sivapalan, 1976. The control contained (6 tubes) the medium while the treatment (30 tubes) contained caffeine (100 ppm) as well. A test tube was placedin the middle to from a thin layer of media between walls of the tubes. After sterilization, the tubes were kept to dry at ambient temperatures, the beetles were allowed to feed on media for numbers of days and then transferred to fresh mediam not containing caffeine.

It was found that beetles in the treatment did not lay eggs for up to 12 days, although on dissection fully developed eggs were found. After 12 days, the size and number of eggs in the ovaries were found to be reduced. The eggs and ovaries of beetles fed on the treatment were transferred for more than 17 days were found to be atrophid. If the beetles in treatment were transferred to control within 48 h, about 2 - 5% oviposition was observed, compared with control. However, beetles transferred after 48 h of treatment beetles did not oviposit.

Caffeine appears to have irreversible oviposition deterrent and ovitoxic effects on the beetles.