

Effect of azadirachtin on midgut enzymes of cockroaches (*Periplanata americana*)

Both *in vivo* and *in vitro* experiments were carried out to examine the effect of azadirachtin¹ on midgut enzymes of adult female cockroaches. The activity of protease, invertase and amylase were measured separately in both azadirachtin treated cockroaches (3 µg/g body weight) and the control cockroaches using the methods described in Ishaaya et al, 1971² 1974³. The *in vivo* results indicate that the azadirachtin treated cockroaches showed 50% reduction of the activity of all three enzymes and azadirachtin had no inhibitory effect on the activity of midgut enzymes *in vitro*. The same experiment was carried out with the ligatured cockroaches in order to study the effect of neurohormones on the secretion of midgut enzymes. In contrast, similar results were obtained from the azadirachtin treated insects and the control insects suggesting the toxic effect of azadirachtin is associated with a disruption of endocrine events in cockroaches.