Abstract

Pueraria mirigica (Pm) bulbs extracted by 99% ethanol (PmEtOH) and distilled water (PmHOH) were treated on American cockroaches, *Periplaneta americana* by mixing them with standard layer feeds (Slf) and water (H_2O). In Experiment I, there were 4 replications 7 treatments viz ; 1) Slf + H_2O (Control) 2) Slf. PmEtOH + H_2O 3) Slf. + H_2O. PmEtOH 4) Slf. PmHOH + H_2O 5) Slf. + H_2O. PmHOH 6) Slf. Estrogen + H_2O and 7) Slf. + H_2O. Estrogen. Both PmEtOH and PmHOH used were at 10% w/w and 12 x 10^{-5} mg w/w commercial estrogen (Premarin) was treated for 45 d and left for 15 d for residual effect observation while Experiment II was with additional treatment of dried Pm powder and was treated with high concentrations of 20% w/w of Pm extracts and 72 x 10^{-5} mg w/w commercial Premarin estrogen for 30 d and left 15 d untreated. Experiment I gave 5% statistical significance for the positive reactions on important reproduction biology by increasing number of total eggs, number of eggs/ootheca and hatch percentages in all Pm treated groups especially and comparatively equal to 12 x 10^{-5} mg w/w commercial estrogen Premarin. Most treatments in Slf.Pm EtOH gave significantly higher number than in the control when left 15 d untreated and were expecially remarkable in H_2O. PmHOH. In experiment II, the Slf.PmEtOH and Slf.PmHOH indicated 1% and 5% significant depression of total egg hatched and hatch percentages when compared with control and both were retained after untreated for 15 d. The depression in the treated groups was statistically less than 72 x 10^{-5} mg w/w commercial estrogen (Premarin) which also prolonged the 15 d residual effects on low hatch percentages and were in contrast with Pm in powder form (Slf.Pm powder) which showed highest positive reactions and retained the positive effects after untreated for 15 days. Morphological abnormalities observed were body shining, body wall and muscle thickening, in Experiment I. Additional abnormalities such as irregular granular formations in haemocoel in both sexes, malformations of ejaculatory ducts and accessory glands in males and tumor ovaries in females were observed in Experiment II.

The result showed phytoestrogenic hormonal behaviors of both PmEtOH and PmHOH that at a low and appropriate concentration, it encouraged the reproductive characters and system but showed the suppression of such characters when the concentration was considerably high. The result showed successful control of the cockroach at 20% w/w concentration of both extracts which was with higher efficiency than the dried powder form.