Potential of selected bio-rationals and locally available materials for the eco-friendly management of Parthenium hysterophorous L.

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ABSTRACT
The invasive alien plant species Parthenium, was introduced to Sri Lanka with the goats brought from India by the Indian peace keeping force for their food in 1987. Itis a problematic weed,possess significant threat not only to agriculture but also to human health and bio-diversity. Nowadays, the distribution of this weed in Northern region of Sri Lanka is dramatically increased more than ever in past. This imposes an urgent need to control this weed from infested sites. Investigations were planned for the efficient management of Parthenium by using bio-rationals and locally available materials. Different botanicals were tested under in-vitro condition. For the field experiments, the salt solution, sea weed solution, vinegar and their mixtures were used. All the experiments were conducted using Complete Randomized Design (CRD). Analysis of variance (ANOVA) was performed in SAS software version 9.4. Duncan's least significant differences (LSD) test among the treatments were calculated to show the best treatment using the same software. The results showed that complete mortality 100 % (P< 0.05) was observed from Tamarindus indica pulp and Cassia tora leaf extract under In-Vitro environment. Under field condition, the maximum mortality of Parthenium was observed for (150 g salt + 1 L vinegar) with the mean of (83.60±4.71). All the growth stages were susceptible for salt solution (81.25±10.12), whereas only rosette stage was susceptible for vinegar (64.71±5.12) and sea weed solution (50.56±5.33). Among the concentration of salt solutions, 6 % was identified as optimum to kill Parthenium. Futher studies needed to find out the reason behind the failure of T. indica pulp in the field condition.

Keywords: Parthenium, Eco-friendly management, Bio-rationals, Weed control