

the indoor cultivation method with cotton waste compost substrate (T1) gave significantly higher values for average yield (6901.18 kg/ha) and average marketable yield (6489 kg/ha) compared to other treatments. Outdoor culture in straw substrate (T3) resulted lowest values for the same yield parameters (567.13 kg/ha, 516.31 kg/ha, respectively). Indoor cultivation method with paddy straw compost and cotton waste compost both resulted higher yields when compared to the outdoor culture. As paddy straw is freely available in Sri Lanka, combining of paddy straw compost and cotton waste compost as the substrate for straw mushroom culture under indoor conditions would be more profitable.

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Evaluation of *Luffa (Luffa acutangula (L.) Roxb)* varieties under low country intermediate zone of Sri Lanka

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Luffa (Luffa acutangula) is a popular low country vegetable in Sri Lanka and it is one of the most highly utilized vegetable species in the farming systems of dry and intermediate zones. The existing *Luffa* varieties in Sri Lanka, recommended by the Department of Agriculture, and the introduced hybrids are vulnerable to pests and diseases and the cost for pest control mainly accounts for the higher production cost of *Luffa*. Makandura Selection (MK) is a *Luffa* variety selected from farmer fields and it shows tolerance to fruit fly (*Bactrocera cucurbitae* (Coquillett)), which is the most serious pest causing high level of economic losses. Therefore, an experiment was conducted at the Regional Agricultural Research and Development Centre, Makandura, to evaluate the performance of Makandura Selection along with the two Department of Agriculture recommended *Luffa* varieties, Asiri and LA 33. The experiment was laid out in a randomized complete block design with four replicates. Evaluation was done based on reproductive, yield and fruit quality parameters. Though the variety LA 33 recorded the significantly highest yield (9.08 t/ha), the higher fruit length (35.02 cm), higher fruit weight (280.5 g) and high fruit firmness (4.38 kg) were not desirable in the context of consumer preference. The variety Asiri recorded a significantly lower yield (7.05 t ha⁻¹) and the lowest fruit firmness (3.89 kg) which are not preferred by the farmers. The variety Makandura Selection showed moderate yields (8.98 t ha⁻¹) and better performance in fruit quality attributes such as lower fruit length (21.7 cm), lower fruit weight (207.2 g) and moderate firmness (4.25 kg). Therefore, the fruit fly tolerant ability, along with these positive fruit characteristics makes Makandura Selection a suitable variety to introduce to the *Luffa* growers in Sri Lanka after further testing.

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Exploring natural resources for sustainable management of ecosystems: future challenges for control and management of *Xyleborus fornicatus* eichh. (Coleoptera: Scolytidae), the shot-hole borer of tea in Sri Lanka

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In view of the highly diverse genetic base of the seedling tea plants, though cultivated as a monocrop, along with shade trees and surrounding forests, provided a reasonably stable ecosystem then. With the introduction of high yielding vegetatively propagated tea during 1950's, a significant change in the distribution and population densities of pests has been taken place. Shot-hole borer is one such pest and since then it has become the most serious and damaging pest of tea in Sri Lanka. Control has been a difficult task as a result of its' wide distribution from near sea level up to 1500m amsl and the concealed habit virtually protected from parasites and predators. Biological control using entomopathogenic fungus, *Beauveria bassiana* Vuillemin (Balsomo) is being viewed as an environmentally friendly alternative to chemical control in the light of growing concern on the usage

of pesticides and since of late, the detection of pesticide residues in made tea. Preliminary investigations were carried out with a view to find out a suitable local strain/s of the fungus for use against this pest.

Laboratory studies have shown that strains of this fungus isolated from a tea garden in Talawakelle (Nuwera Éliya District) and a home garden in Welimada (Badulla District) are highly pathogenic to shot-hole borer imparting more than 90% mortality. A potential exists for using the locally available natural resources like entomopathogenic fungi for the management of key pests in a compatible and ecologically acceptable manner. This forms the basis for Integrated Pest Management (IPM) approach of key pests. These efforts will promote and ensure the sustainable development of the tea ecosystem.