7. CONCLUSIONS AND SUGGESTIONS

1. Of the four partly decomposed organic materials (water hyacinth, paddy waste, cow dung and organic mixture) used in the reproductive study of *L.mauritii* and *P.excavatus* under laboratory condition, organic mixture and paddy waste are considered to be the best organic substrates respectively for *L.mauritii* and *P.excavatus* if one consider the efficiency of earthworm to produce more cocoons and hatchlings. Similarly if other consider the gain in body weight during reproduction as good index, cow dung and organic mixture are considered to be the best feeding materials for the respective earthworms under such condition.

2. Similarly of the four partly decomposed organic materials used in the vermiculture practices of *F*$_1$ hatchlings of both species, the hatchlings of *L.mauritii* and *P.excavatus* respectively cultured in 100 PSR dose of partly decomposed paddy waste and organic mixture gained a maximum biomass with a highest growth value over other organic materials under study. Based on these observations, it is suggested that if some body wants to start vermiculture practice in rural areas for their better living through earthworm biomass production to meet the protein requirements of animal feeds which are essential for the culture of other edible organisms, they should select the said earthworms and their favourite organic matters, paddy waste and organic mixture respectively.

3. Similarly among the two earthworm species used in the vermicomposting practice with four types of partly decomposed organic materials, though both of them effectively decomposed the said organic materials and improved most of their macro and micro - nutrients during vermicomposting process, the nutrients increase effected by *L.mauritii* was relatively more when compared to the nutrients increase effected by *P.excavatus*. Hence both of them can be used as suitable earthworms to decompose the organic materials quickly and effectively.
4. Of the C : N ratios observed in water hyacinth, paddy waste and cow dung after 90, 45 and 20 days of anaerobic decomposition and 30 days of vermicomposting practise with these earthworms, the C : N ratios noted in all the cases are well within the safe range (± 20) and can be used as organic fertilizers directly to any plants which require such type of organic nutrients. From these results it is concluded and suggested that the organic materials selected for this study (water hyacinth, paddy waste and cow dung) can be used as organic fertilizers to any plants only after 90, 45 and 20 days of anaerobic decomposition and 30 days of vermicomposting practice with *L.mauritii* or *P.excavatus* respectively.

5. Of the three, partly decomposed, *L.mauritii* exposed and *P.excavatus* exposed organic materials used in chilli plant cultivation, the plants that are raised in partly decomposed organic materials showed relatively lesser growth and yield than the plants raised in *L.mauritii* exposed and / or *P.excavatus* exposed organic materials. Similarly of the two earthworm exposed organic materials used, the growth and yield values of chilli plants raised in *L.mauritii* exposed organic materials were relatively very high when compared to the plants raised in *P.excavatus* exposed organic materials. From these findings it is concluded that the organic materials vericomposted by *L.mauritii* are more effective and productive than the one with *P.excavatus*.

6. Similarly out of four types of partly decomposed, *L.mauritii* exposed and *P.excavatus* exposed organic materials used in the chilli plant cultivation, the chilli plants raised in partly decomposed and *P.excavatus* exposed cow dung, and in *L.mauritii* exposed paddy waste have produced relatively more yield than the same plants raised in other organic materials with their yield order respectively as cow dung > paddy waste > water hyacinth > organic mixture, cow dung > paddy waste > water hyacinth > organic mixture, and paddy waste > water hyacinth > cow dung > organic mixture. From these results it is inferred and
concluded that out of four organic materials if available plenty in hand for use, cow dung and paddy waste can be selected as best organic materials for chilli plant cultivation if *P.* *excavatus* and *L.* *mauriti* earthworms used as vermicomposters respectively.