

Studies on LAC insect for Conservation of Biodiversity in Similipal biosphere reserve, Odisha, India

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Lac is the only resin of animal origin, the secretion of a tiny scale insect, *Kerria lacca* Kerr. (Coccoidea: Homoptera). Lac got its versatile uses in various sectors like paints, inks, micanite, pharmaceuticals, cosmetics, electrical industry, automobiles, defence, railways, marine and postal departments, surface coating industry, confectionery industry, fruit and vegetable coating, soft drinks, chocolate and candy coating, lac dye for textile industry and in slow - release lac coated urea fertilizer for controlled release of urea nitrogen. An attempt has been made to study culture of lac in a scientific method in peripheral and buffer zones of Similipal Biosphere Reserve (SBR) where farmers are practicing it in a traditional way on its primary host plants (Palas, Kusum and Ber). Temperature, rainfall, humidity etc. were recorded from the study sites to correlate their influence with that of biological attributes of lac insect. To study the life cycle and life span of lac insect, the host plants (Palas, Kusum and Ber) were pruned well before the inoculation to get new tender shoots for settlement of larvae. Both the strains, i.e. Kusmi and Rangeeni, are bivoltine in nature. The longest duration of life cycle of 8 months 5 days was found in Baisakhi (summer) crop and shortest life cycle of 3 months 16 days was found in Katki (rainy) crop of Rangeeni Strain on Palas tree in peripheral zone. The buffer zone also showed the same trend. The life span of young ranged from 44-111 days for all the crops, strains and host plants. The life span of adult male was 2-3 days. Similarly the life span of female insect varied from 62-148 days for different crops. The initial density of settlement of larva ranged between 80-150 no./cm² and 60-132 no. /cm² in Kusmi strain on Kusum and Ber trees, respectively. For Rangeeni strain it was 55-125 no./cm². The sex ratio (male:female) was found to be 1:3 for all the crops, strains and host plants. The range of resin output per cell was 5.25-27.73 mg for winter crop and 8.25-28.12 mg for summer crop of Kusmi strain on Kusum and Ber plants. For Rangeeni strain on Palas plant it was 1.60-16.42 mg for rainy crop and 7.42-24.01 mg for summer crop. Moreover, the temperature influenced the life cycle, life span and resin output of this insect. Pruning of trees meet the firewood requirement as fuel and also for household uses, also prevents deforestation and conserve the forest ecosystem. Lac insect has some vertebrate predators like monkeys, squirrels, rats, lizards, woodpeckers, birds and insect predators are Lepidopterans (*Eublemma amabilis*, *Pseudohypatopa pulvereana*) and Neuropterans (*Chrysopa madestes*, *C. lacciperda*). So directly or indirectly lac cultivation helps in conservation of biodiversity.

Biography

Jhilly Mohanta is doing her Phd. (Life Sciences) in North Orissa University, Odisha. She has published some papers and articles in different journals and attended many national seminars.