ICERYA AEGYPTIACA DOUGLAS: A NEW PEST OF *FLEMINGIA SEMIALATA* AND AS AN ALTERNATE HOST OF *APROSTOCETUS PURPUREUS* (CAMERON) IN LAC ECOSYSTEM

Lac, a natural resin produced by the tiny lac insect *Kerria lacca* Kerr. (Homoptera: Tachardiidae), is considered an important income-generating produce for rural people in eastern India, particularly for the tribal communities residing in and around forest areas. Lac cultivation is generally carried out on a limited number of indigenous tree species found scattered in forests and cultivable land. India is the largest producer of lac in the world and the estimated national production of sticklac during 2009-10 was approximately 16,495 tons. Contribution of Jharkhand in national lac production is about 41.98% followed by Chhattisgarh (30.28%), Madhya Pradesh (14.49%), West Bengal (5.18%) and Maharashtra (3.15%). These five states contributed around 95% of the national lac production (Pal *et al*., 2010). Thailand is India's main competitor in the export market (Tewari, 1994); smaller quantities of lac are also produced by China, Indonesia, Vietnam and Myanmar. However, during the last few years, lac production has shown declining trend due to varied factors. Among these, the most serious is mortality due to parasitization.

Though the lac insect *Kerria lacca* (Kerr), exploits different host-plants for its nutrition but only a few lac hosts are of commercial importance *viz., Butea monosperma (palas), Schleichera oleosa (kusurri)* and *Ziziphus mauritiana (her).* Recent studies show that, *Flemingia semialata* Roxb. (Leguminosae) is an excellent bushy host plant for cultivation of *kusmi* strain of lac insect. It is a tall, bushy host with dense foliage and has tillering habit. After harvesting, it can be ratooned at an interval of six months, which can be further used for lac cultivation after another six months.

Egyptian fluted scale *(Icerya aegyptiaca)*- a new record as a pest of *F. semialata.* Like any other plant, *F. semialata* is also prone to attack by a number of insect pests. Bhattacharya (2001) listed the pests of *Flemingia macrophylla;* many of these pests are common to *F. semialata* also.

I. aegyptiaca tiny scale covered with a white mealy/ wax coating observed infesting *semialata* in October, 2011 at the Institute Research Farm (IRF), Ranchi which was identified as (Margarodidae : Hemiptera): This being polyphagous insect (Ben-Dov 2005; Akintola and Ande, 2009) has a very wide host range. This insect attacks *Annona muricata* (soursop), *Artocarpus altilis* (breadfruit), *A. heterophyllus* (jackfruit), citrus, *Mangifera indica* (mango), *Manilkara zapota* (sapodilla), *Morus alba* (mulberry), *Psidium guajava* (guava), *Ficus sp., arhar (Cajanus cajan)* papaya and castor, (CPCI 2005; Akintola and Ande, 2009). Immature as well as adults suck the cell sap from leaves and upper soft portion of the *semialata* plant, results in leaf drop and stunted growth. As with the most sap-sucking insects, production of honeydew was also observed leading to growth of sooty mould on the affected plant parts. During caging studies, emergence of *Aprostocetus purpureus* (Cameron) was observed from this scale *with* 57% of parasitisation of lac insect is due to this parasitoid alone (Sharma *et al.,* 2010). In November, 2011 a sample of *semialata* leaves infested with *I. aegyptiaca* was collected from IRF and caged for adult emergence. During the caging five adults of *A. purpureus* emerged out. Another sample *of semialata* leaves infested with *I. aegyptiaca* caged in January and February 2012 gave out 79 adults of *A. purpureus*. Further, dissection of dead scale insects under microscope revealed presence of adultoids of *A. purpureus* inside the *I. aegyptiaca*. *A. purpureus* being an endoparasitoid of *K. lacca* has till now defied all pest management practices for its control. Parasitisation of lac insect at an early stage of its development by this parasitoid could lead to complete failure of the lac crop. Record of *I. aegyptiaca* as a host of *A. purpureus* has opened a new and exciting vista of research for managing lac insect parasitoids. Studies on host preference of this parasitoid may yield interesting results and this alternate host, if preferred by the parasitoid over lac insect, could be used as trap crop. It would be particularly beneficial during the early stages of lac cultivation, as lac insect is more vulnerable to parasitisation during pre-fertilization stage. If parasitisation of the most sensitive stage of lac insect is avoided or delayed to post fertilization stage, damage to the lac crop could be minimised. But care would have to be taken so as to destroy the trap crop (*I. aegyptiaca)* before emergence of the parasitoid *(A. purpureus)* from the alternate host; otherwise, it may serve as a reservoir of the parasitoid leading to increased damage to the lac crop. Since, *F. semialata* is a lac host, alternate host plants of *I. aegyptiaca* would also have to be explored for its rearing to act as a trap

crop. Precautions would be required so that *I. aegyptiaca* does not become a pest of *F. semialata* or a competitor to the lac insect.

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