Use of *Clusia rosea* as a root stock in grafting two economically important plants in the same family (Clusiaceae)

H. M. P. Peiris[1] and D.S.A. Wijesundara[2]

[1]*Brownlow Estate, Maskeliya, Sri Lanka*
[2]*National Institute of Fundamental Studies, Hantana Road, Kandy*

Clusia rosea (Gal goraka) is a plant having a highly efficient C4 photosynthetic pathway. *Clusia* is native to Central America,and is considered an invasive plant in the sub-montane region of Sri Lanka. *Clusia rosea* has the ability to prosper in marginal landscapes, such as rocky areas, due to its strong and efficient root system. Success rates of grafted *Garcinia quaesita* (Goraka) and *G. mangostana* (Mangosteen) up to fruiting stage are low due to poor support in nutrient absorption by their root stocks. An experiment was conducted at Hapugastenne estate, Maskeliya, to ascertain the possibility of using *C. rosea* as a rootstock in grafting crop plants such as*Garcinia quaesita* (goraka) and *G. mangostana* (mangosteen), to the same family (Clusiaceae) which *Clusia* also belongs.Stem thickness of rootstocks were selected according to the scion stem diameter,such that the former was greater than the latter. Twigs of 2- and 4-leaved stages were used as scion in mangosteen. Grafting of goraka was carried out with a variety of treatment scion types including a) unbranched 4-6 fully opened leaved twigs, b) branched twigs with 12 to 15 full leaves, and c) un-branched scions with half-trimmed leaves and branched scions with 12-15 half-trimmed leaves. For grafting mangosteen and goraka, 250 and 75*Clusia* stocks were used respectively. All grafted plants were kept under well-humid conditions in a shade house for a period of two months, before being taken out for acclimatization.

The results showed that 55% of mangosteen and 67% of goraka grafts survived at the time of acclimatization. However, since the start of the acclimatization, the mortality rates increased over time. After 1 month of acclimatization, only 32% of mangosteen plants survived. In goraka, the survival rate was highest (48 %)in unbranched, smaller (5-10 cm long) scions with 4-6 fully opened leaved twigs. In *G. mangostana* the highest survival was seen with 5-10 cm long, two-leaved twigs as the scion.

Further studies are required under modified conditions and treatment regimes to improve the survival rates of grafted plants of both species.

Keywords: Mangosteen, Goraka, *Clusia*, invasive plants, grafting