

Trunk Injection Method for Introducing Chemical Formulations in to Rubber Trees

**Fernando T.H.P.S.^{1*}, Wijesundera R.L.C.², Silva M.K.R.¹,
Wijerathne C.¹ and Mirando J.S.³**

¹Rubber Research Institute, Darton Field, Sri Lanka

²University of Colombo, Colombo 03, Sri Lanka

³University of Wayamba, Sri Lanka

*thpsfernando@yahoo.com

Abstract

Natural Rubber is an important commodity to the economy of Sri Lanka. This industry makes export earnings, sustain the livelihood of over thousands of people, supplement thousands of hectares to the forest cover and provide many other socio-economic and ecological benefits. The economically important diseases are regarded as a major constraint for achieving potential productivity levels of rubber cultivations. Hence management of these diseases provides economic benefits to rubber growers. The most popular method of disease control is chemical control. There are various chemical application techniques and spray applications, soil drenching, dusting or broadcasting are popular methods. Based on the age, type of the disease or the prevailing weather conditions, the application technology needs to be changed. These conventional technologies have many health and environmental drawbacks. Therefore, economical and environmental friendly chemical application techniques have become important. The present study was aimed at investigating the trunk injection method for introducing chemical formulations into trees. Several types of potential injectors are available and the chemjet injectors described by Guest *et al.*, (1994) was used throughout the experiments. These injectors [Chemjet Trading (Pvt) Ltd, Australia] contain 20ml of the solution and have a working pressure of 1 – 1.5 bars facilitating the formulation into the trees through drilled holes. The injection process was tested at Dartonfield Estate, on the *Hevea brasiliensis* clone RRIC 121. The average girth at the tested plants was 89 cm. Two analyses viz. 45, 60 to a depth of 4 cm from the outer bark was done. The uptake rates were determined using 8% tebuconazole in aqueous solutions. Uptake of the fungicide was slightly higher in deep injected method compared to shallow injection. The two angles tested against the liquid uptake too were not significantly different from each other. No interaction was observed among the injection angle and the depth of injection on the liquid uptake. More than 70% of the trees had uptaken the entire 20ml injected volume within 48 hrs of injection. Trunk diameter had no effect on the uptaking process. The results obtained proved the possibility of injecting liquids / chemical solutions into rubber trees. Trunk injection requires low volumes of chemicals resulting in reduced cost in chemical applications. Minimum wastage of chemicals could be achieved together with reducing the impact of hazardous chemicals on the environment. Compared to the currently practiced chemical application methods into trees, this application technique has many advantages.

Keywords: Trunk injection, *Hevea brasiliensis*, Chemical formulations