

HYPODERMIC EXTRACTION OF LATEX FROM *HEVEA BRASILIENSIS*

M. M. Guha, P. R. Guha, J. Mathews and A. Guha

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A method and apparatus for using a gaseous unsaturated hydrocarbon, or oxide thereof, as a yield stimulant by its direct absorption into the live bark tissues of *Hevea brasiliensis* are described.* A polythene or rubber jacket sealed to the tree bark is used for holding the stimulant. This prolongs latex flow, when a hypodermic puncture is made in the bark, for upto 40 h. or more at a maximum rate of one ml per minute. The latex is collected by means of a hollow tube or needle (of about one mm internal diameter) that leads into a covered latex collection container, from the hypodermic puncture. The total outflow of latex from one aperture was between 1000 ml and 2000 ml per extraction, compared to only about 150 ml obtainable from conventional half spiral tapping systems. The higher yield realized by this method promises a bright future for the natural rubber industry. Physiological parameters relevant to sucrose translocation and its subsequent synthesis into isoprene *in situ* were also monitored over a period. The physiological dynamics of this conversion of sucrose into isoprene is also discussed briefly. Anatomical examination of stimulated bark samples taken from trees under the new method of latex extraction did not indicate any undesirable effects. Microscopic observation of the stimulated bark samples indicated no decrease in the number of healthy latex vessel rings.

Key words : *Hevea brasiliensis*, Microtapping, Yield stimulants, Plugging, Latex flow, Ethylene, Sucrose.

M. M. Guha (for correspondence), P. R. Guha, J. Mathews and A. Guha, Agricultural Research and Advisory (SDN) BHID (ARAR), 3 1/2 Miles Kajang-Serdang Road, 43000 Kajang, Selangor Darul Ehsan, West Malaysia.

INTRODUCTION

Methods for increasing yield of rubber from *Hevea brasiliensis* by different tapping and stimulation systems have been studied for a long time (Abraham *et al.*, 1968; Abraham *et al.*, 1971a, b; Abraham *et al.*, 1972; Abraham *et al.*, 1976; Abraham and Tayler, 1967; Banchi and Poliniere, 1969; Blackman, 1961; Chapman, 1951; Leong *et al.*, 1976; Pakianathan, 1970; Sivakumaran and Gomez, 1981; Tupy, 1973). Such investigations were on the mechanisms of stimulation, improvement in the

practical technique in the use of stimulant, and in the pursuit for new and better stimulant chemicals.

The mechanism of yield stimulation is generally related to the plugging of latex vessel terminals after severing them at tapping (Boatman, 1966; Buttery and Boatman, 1967). Plugging of vessel terminals, usually measured as the plugging index (PI), varies with the clone and with the length of tapping cut, being higher with shorter cuts (Milford *et al.*, 1961; Paardekooper and Samosorn, 1969;

* Pending patent applications in India and other countries.

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