

## SINGLE AND TWO STAGE DIFFUSION PROCESS BY DIFFERENT CHEMICAL COMBINATIONS FOR TREATMENT OF RUBBER WOOD

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Treatment of rubber wood by diffusion process using sodium pentachlorophenate in combination with either zinc sulphate or copper sulphate was found to be very effective for the preservation of both fungal and insect attack. Zinc sulphate or copper sulphate can be considered as a substitute for borax, boric acid combination against insect attack in the preservative treatment of rubber wood. It was found that single stage diffusion process after two consecutive dippings in sodium pentachlorophenate and in either zinc sulphate or copper sulphate is equally effective as two stage diffusion process, first with sodium pentachlorophenate and then with either zinc sulphate or copper sulphate.

Key words : *Hevea brasiliensis*, Sapstain fungus, Insect borer, Wood preservation, Diffusion process, Rubber wood.

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### INTRODUCTION

The rubber tree, *Hevea brasiliensis* (Willd. Ex. ADR. de Juss.) Muell. Arg., yields valuable timber after its exploitation for latex. In 1993-94, it was estimated that 1.235 m<sup>3</sup> of rubber wood was available in India (Joseph and George, 1994). After felling, rubber wood undergoes degradation by different fungi viz., *Botryodiplodia theobromae* Pat, *Aspergillus* sp., *Penicillium* sp. (Ali et al., 1980), *Trichoderma* sp. (Hong, 1981), *Fusarium* sp. (Jose et al., 1989) and by different borer beetles *Heterobostrychus aequalis*, *Sinoxylon canigerum*, *S. anale*, *Minthea rugicollis*, *Platypus latifinns*, *P. solidus*, *Xyleborus similis* (Mathew, 1987). Deterioration of wood by these organisms can be prevented, if the wood is properly treated. Diffusion treatment is one of the methods for the preservation

of rubber wood (Indian Standard, IS 401).

Diffusion treatment of rubber wood planks with borax, boric acid and sodium pentachlorophenate mixture was reported to be effective against both fungi and insect borers (Gnanaharan and Mathew, 1982). Earlier studies have shown that diffusion treatment with copper sulphate was effective against borer beetles (Jose et al., 1989). Copper sulphate and zinc sulphate were also tested with sodium pentachlorophenate and good preservative qualities were reported (Richardson, 1978). Hence, a study was undertaken with different combinations of sodium pentachlorophenate with either zinc sulphate or copper sulphate to compare single stage and two stage diffusion processes.