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EVALUATION OF NEW OIL-DISPERSIBLE FUNGICIDE FORMULATIONS FOR THE CONTROL OF ABNORMAL LEAF FALL OF RUBBER (*HEVEA BRASILIENSIS*) CAUSED BY *PHYTOPHTHORA* SPP.

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New oil-dispersible fungicide formulations, mancozeb and its combination with copper oxychloride (COC) and metalaxyl in combination with COC were field - tested in different locations for the control of abnormal leaf fall disease of rubber (*Hevea brasiliensis*) caused by *Phytophthora* spp. by aerial and ground spraying. A powder formulation of mancozeb and a combination product of COC and metalaxyl (5 kg/ha) were found to be as effective as COC (8 kg/ha). The new fungicides are useful alternatives for COC which has been continuously in use for about four decades.

Key words. Abnormal leaf fall, Disease control, *Hevea*, *Phytophthora*, Spraying.

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INTRODUCTION

Oil-dispersible copper oxychloride (COC) formulations have been in use for the control of abnormal leaf fall disease caused by *Phytophthora* spp. on rubber trees (*Hevea brasiliensis*) in India (Edathil *et al.*, 2000). The oil - dispersible formulations are preferred due to the lower specific gravity of spray fluid which favour a higher delivery when applied from ground and due to the longer persistence and slower release of the active ingredient. This is particularly significant for rubber trees which often attain more than 25 m height and are sprayed only once in a season prior to the monsoons (Ramakrishnan and Pillai, 1961). Repeated use of COC has resulted in the accumulation of copper in rubber growing soils (Rajendran *et al.*, 1999). Hence attempts were made to evaluate new oil-based fungicides which may reduce or replace the use of copper fungicides for rubber spraying.

MATERIALS AND METHODS

Five field experiments were conducted to evaluate new oil - dispersible fungicide formulations. A combination of metalaxyl and copper oxychloride (Ridomil plus) and mancozeb (Indofil M45) alone or in combination with COC either as liquid or as powder were evaluated (Tables 1 to 5). The experiments were conducted on mature rubber trees of clone RRIM 600, GT 1, RRII 105 and PB 235. Only one round of pre-monsoon spraying was carried out either from the ground using micron sprayers or aerially by using helicopters as per recommended practice (Rubber Board, 2000). Ground spraying was conducted in 0.4 ha and aerial spraying in 4 ha blocks. In the case of the micron spraying trial on clone PB 235 the plot size was 0.25 ha and the experiment was laid out in randomized block design with three replications per treatment. The other experiments were