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**DEVELOPMENT OF RESISTANCE IN *ERIGERON SUMATRENSIS* (RETZ)
TO PARAQUAT IN UP COUNTRY TEA LANDS OF SRI LANKA**

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Paraquat (1,1'-dimethyl-4,4'-bipyridinium ion) has been recommended to control *Erigeron sumatrensis* (Retz), a major weed in tea lands in the up country region of Sri Lanka during the past two decades of years. However, recently there have been reports that paraquat does not effectively control *E. sumatrensis*. Thus, the present study was conducted to elucidate any resistant development in this weed to paraquat.

Paraquat was applied at four different rates, namely, 0.165 or 0.26 (recommended rate) or 0.325 or 0.39 kg ai/ha, at four different growth stages of a naturally grown population of *E. sumatrensis* (2/4 or 5/6 or 7/8 leaf stage or at flowering stage), with an untreated control.

There was no observable injury in *E. sumatrensis* plants in response to application of the herbicide at different growth stages. During the initial stages after herbicide treatments, the cell membrane leakage (electrical conductivity) of the leaves increased and the efficiency of photosystem (F_v/F_m ratio) decreased when compared to those of the control plots. Increase in concentration of the herbicide, enhanced the phytotoxic activity. However, these physiological parameters gradually recovered within a period of 10 hrs after treatment. Similar results were observed under both field and glass house conditions.

The results indicate that *E. sumatrensis* has developed resistance to paraquat by gradual recovery of the cell membrane permeability and the photosynthetic efficiency of the leaves.