

**Title** Persistence and residue dynamics of mancozeb and its toxic metabolite Ethylene Thiourea (ETU) in table grapes

**Authors** Kaushik Banerjee, D.P. Oulkar, P.G. Adsule

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#### **Abstract**

The rate of degradation of mancozeb and the residue dynamics of its primary metabolite ethylenethiourea (ETU) in table grapes is reported. Mancozeb residues dissipated following first order rate kinetics with a half-life of 15.4 and 18.2 days in the case of standard and double doses of 1.5 and 3 kg a.i/ha, respectively, when applied 4 times before harvest. The residues of the primary metabolite of mancozeb, viz, ETU were detectable on the day of the spray application itself, indicating immediate conversion of free mancozeb molecules to ETU when exposed to open environment. ETU residue level increased with time up to 5 days at both the doses as a result of gradual conversion of mancozeb to this toxic metabolite. After 5 days, the residue level of ETU started decreasing, indicating further conversion of ETU residues to other relatively non-toxic metabolites. A pre-harvest interval of 20 days may be recommended for dissipation of mancozeb and ETU residues to below detectable level.