

# A STUDY OF THE CHEMICAL COMPONENTS OF THE ROOTS OF *DECALEPIS HAMILTONII*

## Part V. A Note on the Use of 4-*o*-Methylresorcylic Aldehyde as a Preservative

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IN the preservation of canned and stored food, from the attack of bacterial and fungal organisms, certain preservatives like sulphur dioxide and benzoic acid were at one time freely employed. Since they have undesirable effects on health, laws have been enacted in various countries restricting their use. Recent trend has been in the direction of utilising natural preservatives which are not toxic to larger animals and which inhibit the growth of micro-organisms. Spices have been examined in this connection. Though they are not very good as such, volatile oils obtained from them have been found to be very satisfactory. Essential oil of mustard has proved itself to be a good preservative being even better than sulphur dioxide and benzoic acid. Oils of cinnamon, clove, thyme and bay leaves are also stated to be good.

It was noticed in the course of our work on the roots of *Decalepis Hamiltonii* and of *Hemidesmus indicus*,<sup>1</sup> that the air dried roots when kept for a long time, were unaffected by fungus and insects. Even the fresh roots were remarkably free from micro-organisms in the course of several days. It appeared that this was due to the presence of the sweet smelling volatile compound, 4-*o*-methylresorcylic aldehyde to the extent of 0.8% in the former and about 0.12% in the latter. It was therefore felt desirable to investigate the properties of this aldehyde as a preservative. The substance has a sweet and agreeable smell and a mild pungent and aromatic taste. It can be easily isolated by steam distillation of the powdered roots. A better yield can be obtained by extracting the material with alcohol and after distilling off the solvent, subjecting the residue to steam distillation. It can also be obtained in large quantities synthetically by the methylation of  $\beta$ -resorcylic aldehyde, using dimethyl sulphate and sodium hydroxide.<sup>2</sup>

Experiments were conducted to test roughly its toxicity to fish and bacteria. Small fresh-water fish known as *Haplochilus panchax* were employed for the former and *B. Coli* for the latter. It has been found that at a concentration of 0.021 per cent., a solution of it is toxic to fish and that they die within 4 minutes. The growth of *B. Coli* was arrested effectively in a

