
The Use of Ion Exchange Resins in the Decomposition of Lead Salts of Flavonoid Compounds

CLARK H. ICE, THOMAS B. GAGE and SIMON H. WENDER,
University of Oklahoma, Norman

The preparation of a lead salt has been widely used as a step in the isolation and purification of organic compounds. This is especially true in the case of the flavonoids, which are usually isolated from plant sources (1). Classically, the lead salt is decomposed by the addition of hydrogen sulfide and the resulting lead sulfide is then removed by filtration. In the treatment of flavonoids, it has been found that excessive losses may occur during this process due to adsorption of the pigment on the lead sulfide. Also, the product as isolated may contain traces of inorganic impurities. The present work was undertaken in an effort to devise a method which would be free of these objectionable features.

EXPERIMENTAL

An aqueous solution containing 0.5 gm. of quercitrin was treated with a slight excess of basic lead acetate. The resulting lead salt was filtered

and the solid washed with distilled water to remove excess reagent. The precipitate was slurried in 100 ml. of 95 per cent ethanol and next decomposed by the dropwise addition of concentrated sulfuric acid. Following removal of the precipitated lead sulfate by filtration, the alcoholic solution was passed through a 20 x 150 mm. ion exchange column containing Amberlite IR-45 resin. This column was prepared using an alcohol-resin slurry, and was regenerated with an alcoholic ammonium hydroxide solution. The neutral eluate was concentrated at reduced pressure to a volume of approximately 10 ml. The mixture was cooled in the refrigerator and the quercitrin then recovered by filtering on sintered glass. The yield was 0.45 gm.

Ethanol may be replaced by acetone as the solvent, or water may be used as solvent throughout.

SUMMARY

A satisfactory method, using Amberlite IR-45, for the decomposition of the lead salts of flavonoids has been described.

ACKNOWLEDGMENT

This investigation was supported in part by a grant from the Atomic Energy Commission.

LITERATURE CITED

1. KLEIN, G. 1932. Handbuch Der Pflanzenanalyse. Vienna: Julius Springer Vol. II, p. 882.
-