

Isolation of individual hop iso- α -acids stereoisomers by β -cyclodextrin.

ABSTRACT

Individual iso- α -acids that are responsible for the bitter taste of beer need to be isolated because these acids are required as reference standards in quantitative analysis and when studying the parameters which effect the quality of beer. However, these pure compounds are very expensive, due to inefficient isolation methods. In this study a new isolation method has been developed, in order to reduce the isolation cost. β -Cyclodextrin has been used for the isolation of trans- and cis-iso- α -acids. The separation from the mixture of stereoisomers was achieved by complexation, using ethanol:water (1:2, v/v) as a solvent at a temperature of 50°C for 30min. The molar ratio of iso- α -acids sample to β -cyclodextrin for complexation was 1:1. Precipitation time varied between 9h and 2days, depending on the iso- α -acid. Release of the guest from the cyclodextrin complex was successfully accomplished by elution with methanol.

Keyword: Hop; Cyclodextrin; Beer; Bitter acids; Iso-a-acids; Centrifugal partition chromatography.