[MS38-P04] β-Cyclodextrin - Suitable Molecular Container for Camphor Enantiomers

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Camphor belongs to the family of terpenoids and exists in two enantiomeric forms. It is mainly obtained from camphor laurel. As it undergoes rapid sublimation, its usage is limited. One of the possibilities to lower the volatility of the compound is the formation of complexes with macrocyclic receptors. Cyclodextrins (CDs) are macrocyclic carbohydrate compounds, torus-like shaped consisting of glucopyranose units connected by the 1,4*O*-glycosidic bonds. They are widely known for their complexing properties towards a variety of inorganic and organic compounds. Due to this specific ability they are commonly used in food [1] and cosmetic [2] industry. Selectivity of native cyclodextrins towards enantiomers of monoterpenes has been a subject of some investigations [3] mainly by means of gas-liquid chromatography. Formation of complexes of both enantiomers of camphor with α-cyclodextrin was reported by Bethanis *et al* [4]. In the present study, formation of the molecular complex of β-cyclodextrin with (-)-camphor and (+)-camphor is reported. The desired compound was obtained by addition of methanol solution of (-)-or (+)-camphor to the aqueous solution of β-cyclodextrin (1:1 molar ratio). Crystals appropriate for X-Ray measurement were obtained by slow cooling of saturated aqueous solution. Stoichiometry of both diastereomeric complexes was assigned as 1:1. Both crystal structures reveal that one guest molecule is accommodated inside the cavity of β-cyclodextrin molecule. In both: (-)-and (+)-cases, the camphor molecule exhibits disorder and occupies two major sites. This research was partly financed by the European Union within the European Regional Development Fund (POIG.01.01.02-14-102/09)

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