

## 10. Abstract

Three types of derivatives  $\alpha$ -cyclodextrin with mercapto groups in transannular positions C(6<sup>I</sup>) and C(6<sup>IV</sup>) in glucopyranose units were prepared. The intermediate was C(6<sup>I</sup>), C(6<sup>IV</sup>) diol benzylated  $\alpha$ -cyclodextrin obtained by selective debenylation of perbenzylated  $\alpha$ -cyclodextrin. The first synthetic pathway to dimercaptan methylated  $\alpha$ -cyclodextrin from diol was based on protecting of hydroxyl groups, followed by total debenylation. Subsequent methylation and desilylation was provided diol, which was transformed to dimercaptan. The synthesis of the second dimercaptan derivative  $\alpha$ -cyclodextrin bearing benzyl groups on secondary rims of glucopyranose units started from C(6<sup>I</sup>), C(6<sup>IV</sup>) dibromide of benzylated  $\alpha$ -cyclodextrin. By selective debenylation in acetic anhydride using trimethylsilyl trifluoromethanesulfonate, subsequent acid deacetylation and the reaction with thiourea the dimercaptan was obtained. The third type of dimercaptan bears no substituents in other positions of  $\alpha$ -cyclodextrin. This derivative was subjected to oxidative coupling in alkaline water solution using template effect of hexadecanoic acid. The reaction yielded dimer connected by disulfidic linkage in positions C(6<sup>I</sup>) - C'(6<sup>I</sup>) and C(6<sup>IV</sup>) - C'(6<sup>IV</sup>).

**Keywords:** debenylation /  $\alpha$ -cyclodextrin / bromination / thiol group / oxidative coupling / template effect / dimeration