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论文

γ-环糊精与溴甲酚绿的包合作用

刘虹[1], 顾正彪[1,2], 洪雁[1], 李兆丰[1,2]

1. 江南大学食品学院,
2. 食品科学与技术国家重点实验室, 无锡 214122

摘要:

采用紫外-可见分光光度法和等摩尔连续变化法研究了γ-环糊精与溴甲酚绿的包合作用, 确定了包合物形成的化学计量比为1∶2; 采用热力学方法分析了温度与包合常数之间的关系, 计算了包合过程的焓变、熵变及自由能变化分别为-39.988 kJ/mol, 86.400 J/(K·mol)和-14.245 kJ/mol, 这表明疏水作用力为主要驱动力; 采用核磁共振、分子模拟和红外光谱法对包合物进行了研究, 确定了包合物的形成, 分析认为这可能是基团进入γ-环糊精腔内导致增色效应.

关键词: γ-环糊精 溴甲酚绿 包合物

Complexation of γ-Cyclodextrin with Bromocresol Green

LIU Hong[1], GU Zheng-Biao[1,2*], HONG Yan[1], LI Zhao-Feng[1,2]

1. School of Food Science and Technology,
2. The State Key Laboratory of Food Science and Technology, Jiangnan University, Wuxi 214122, China

Abstract:

UV-Vis and continuous variation plot method were used to study the complexation of γ-cyclodextrin with bromocresol green, and the stoichiometric ratio of the complexation was to be 1∶2. Thermodynamic analysis results show an inverse relationship between temperature and complexation constant, and the change of enthalpy, entropy and free energy of the complexation were -39.988 kJ/mol, 86.400 J/(K·mol) and -14.245 kJ/mol, respectively, which indicating that hydrophobic effect was the main force to form the complexes. γ-Cyclodextrin and bromocresol green complexes were examined by nuclear magnetic resonance, infrared spectrum and molecular modeling analysis, and was may be the group included in γ-cyclodextrin.

Keywords: γ-Cyclodextrin Bromocresol green Complexation

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