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Characterization of the Inclusion Complex of Angiotensin I with Dimethyl-β-cyclodextrin

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The properties of the inclusion complex of Angiotensin I (ANG-I), a precursor of angiotensin II (ANG-II), with dimethyl-β-cyclodextrin(DM-β-CD) were characterized. The NMR signals of ANG-I and inclusion complex of ANG-I:DM-β-CD were assigned with the aid of 1D 1H, 13C, and 2D NOESY experiments. The proton chemical shifts of DM-β-CD at various mole fractions of ANG-I:DM-β-CD in D_2O at 25℃ were also measured to determine the stoichiometry of the inclusion complex. The 13C NMR signals of Phe(βCH_2, 3,4,5 CH, 1C), His(5C, 4CH, αCH), Leu(αCH) residues of the ANG-1 were largely shifted in the presence of the DM-β-CD. NOESY spectrum of the inclusion complex in aqueous solution showed that the Phe residue was the most strongly interacted with the intermolecular portion of the DM-β-CD. In addition, the inclusion complex of ANG-1 with DM-β-CD showed a 1:1 stoichiometry of the complex by the continuous variation plots method. The results of the present experiment would provide structural information on the molecular interaction between ANG-I and DM-β-CD in the aqueous solution.