

NOVEL INCLUSION COMPLEX OF β -CYCLODEXTRIN AND [2-(2-CHLORO-PHENYLCARBAMOYL)-PHENOXY]-ACETIC ACID ETHYL ESTER

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Abstract

Cyclodextrins (CDs) are cyclicoligosaccharides with 6, 7 or 8 glucose residues joined by a 1-4 glycosidic linkage, produced from starch by enzymatic conversion. Due to the lack of side effects, CDs are FDA-approved compounds for solubilizing, capturing, and delivering lipophilic drugs in humans [1] known for their numerous applications in the pharmaceutical industry, mainly as good carriers for different types of drugs, improving their solubility, stability and bioavailability [2]. Some researches proved that using CDs for encapsulation of poorly soluble active compounds decreases the minimum active concentration required to achieve a biological effect [3] and that the encapsulated compound is released over a significantly longer time period compared with the uncapped one [4].

Salicylanilide derivatives possess antimicrobial, analgesic, anti-inflammatory, hypoglycaemic, antitumoral activities, etc. In order to improve the water solubility, the chemical and physical stability and the drug distribution through biological membranes, a novel complex of [2-(2-chloro-phenylcarbamoil)-phenoxy]-acetic acid ethyl ester with β -CD was obtained using kneading method. The inclusion complex characterization was achieved by modern analytical methods, FTIR, UV-Vis, TG/DSC, X-ray diffraction and SEM analysis. All obtained data confirm the inclusion of the ethyl ester inside the β -CD cavity.

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References

- [1] S. Shuang, J. Pan, S. Guo, M. Cai, C. Liu, Anal. Lett. 30 (1997) 2261.
- [2] J. Conceicao, O. Adeoye, H.M. Cabral-Marques, J.M.S. Lobo, Curr. Pharm. Des. 24 (2018) 1405.
- [3] M.E. Carlotti, S. Sapino, E. Ugazio, G. Caron, J. Incl. Phenom. Macrocycl. Chem. 70 (2010) 81.
- [4] F. Aqil, R. Munagala, J. Jeyabalan, M.V. Vadhanam, Cancer Lett. 334 (2013) 133.