

INCLUSION COMPLEXES OF NEW IBUPROFEN THIAZOLIDIN-4-ONES WITH β -CYCLODEXTRIN

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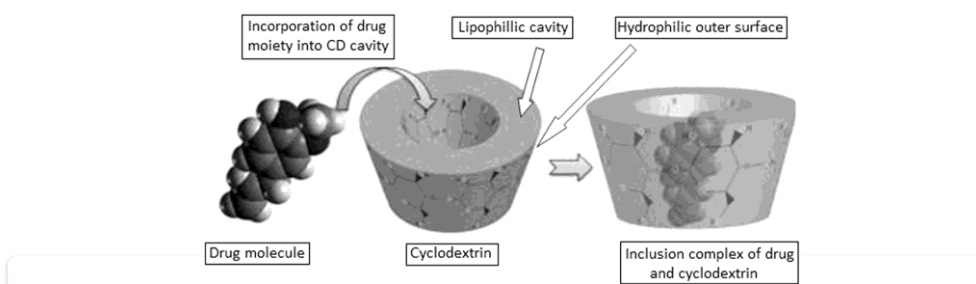
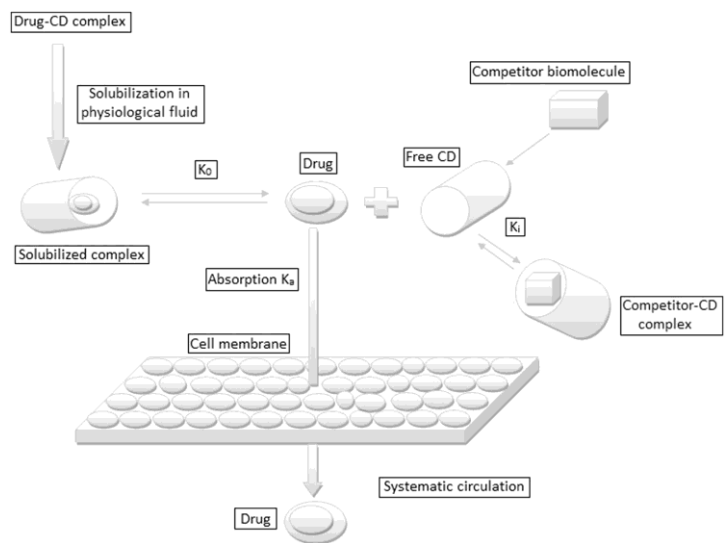
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CYCLODEXTRINS

- ✓ modifying some pharmaceutical properties of the drugs through enhancing the bioavailability (solubility of problematic drugs, dissolution rate)
- ✓ increasing the physical and chemical stability and lowering drugs toxicity
- ✓ masking the unpleasant taste or odor
- ✓ reducing side effects (gastrointestinal, ocular or dermal irritation)
- ✓ simplifying handling (reducing volatility, converting oils/liquids to powders)
- ✓ developing controlled release systems in order to modulate biological activity

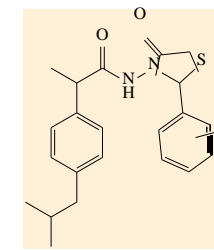
Applications in different areas of drug delivery

- ✓ parenteral
- ✓ oral
- ✓ ophthalmic
- ✓ nasal
- ✓ dermal
- ✓ rectal
- ✓ sublingual
- ✓ pulmonary



The research project combines two actual topics in pharmaceutical area: developing new safer drugs and improving the pharmacokinetic and pharmacotoxicological profile through complexation with cyclodextrins

The selected derivatives were previously synthesized and biological evaluated proving an important antioxidant and anti-inflammatory/analgesic potential, but lower solubility that may limit their therapeutic usage



7b = 4-Cl; 7g = 4-NO₂;
7k = 4-CN; 7m = 4-NH₂

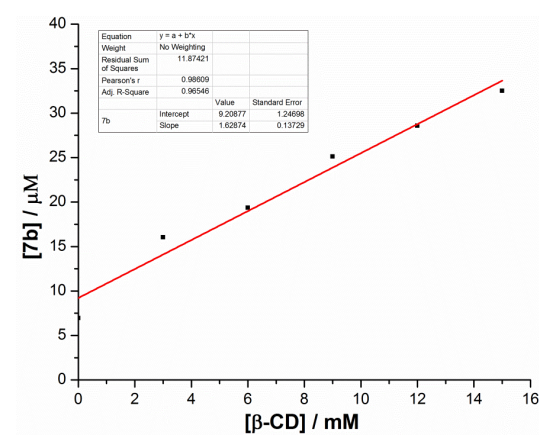
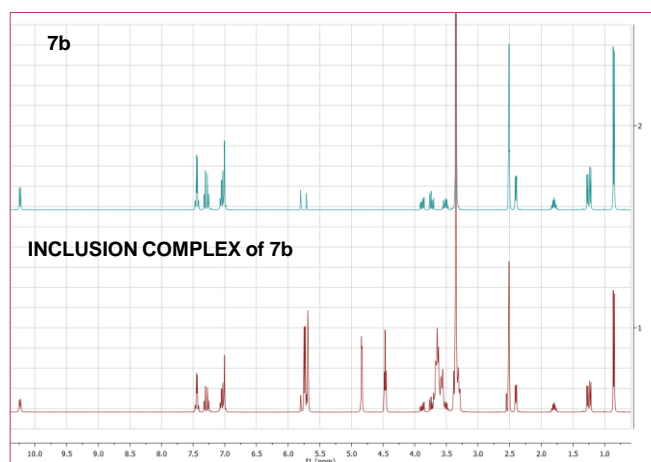
new ibuprofen derivatives with thiazolidin-4-one

MATERIALS and METHODS

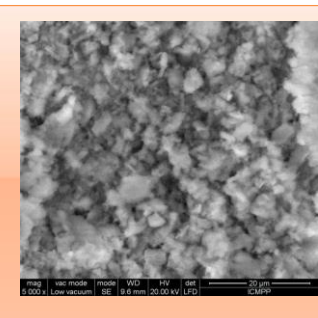
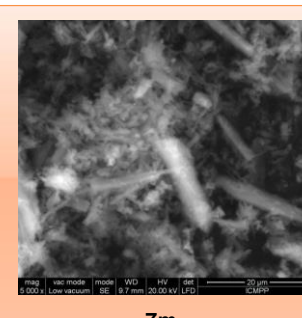
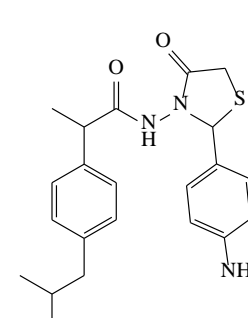
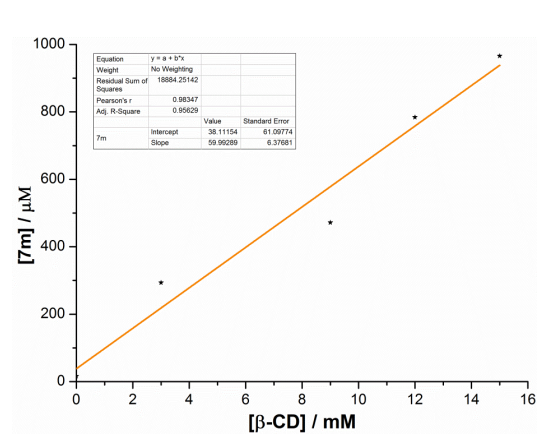
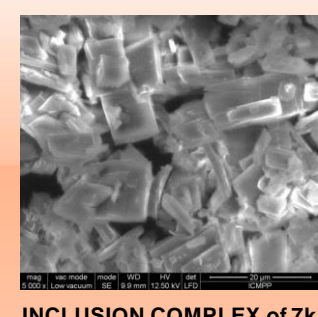
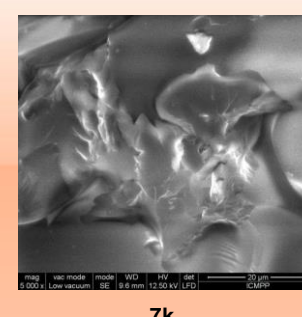
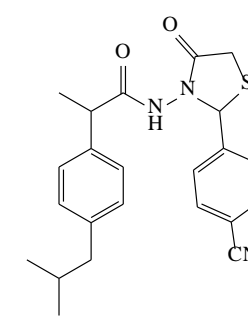
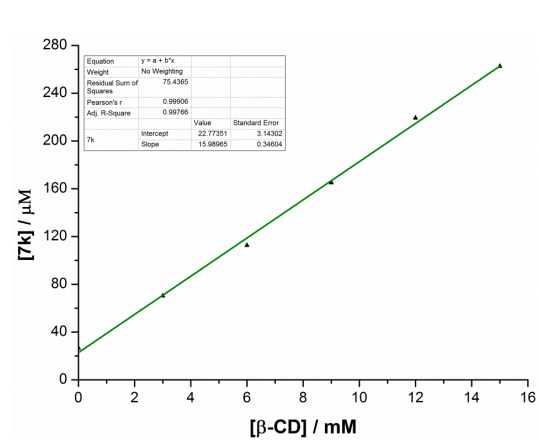
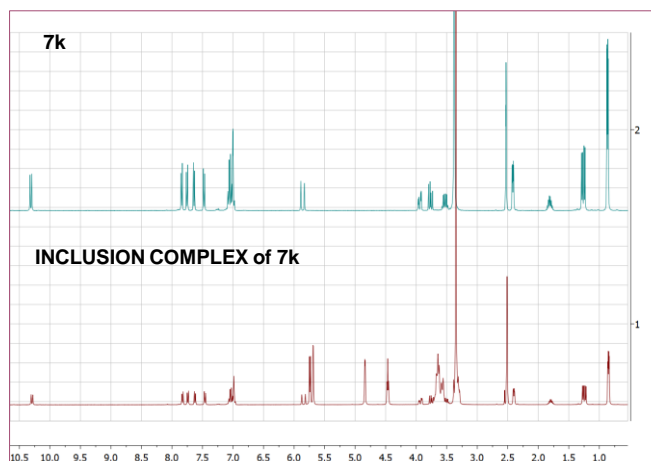
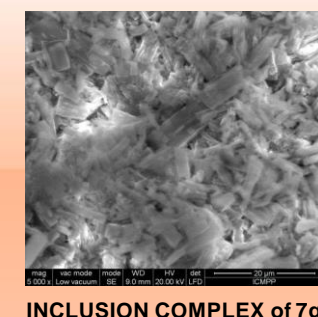
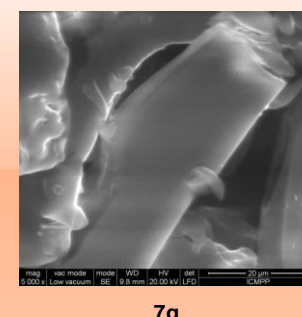
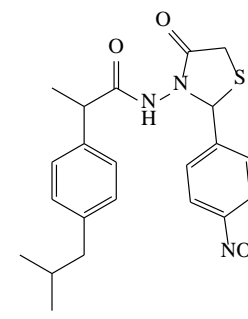
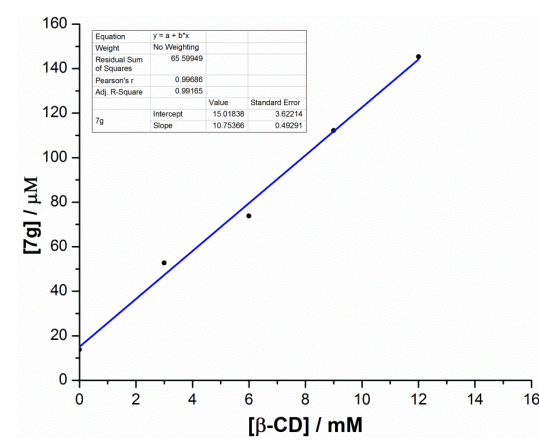
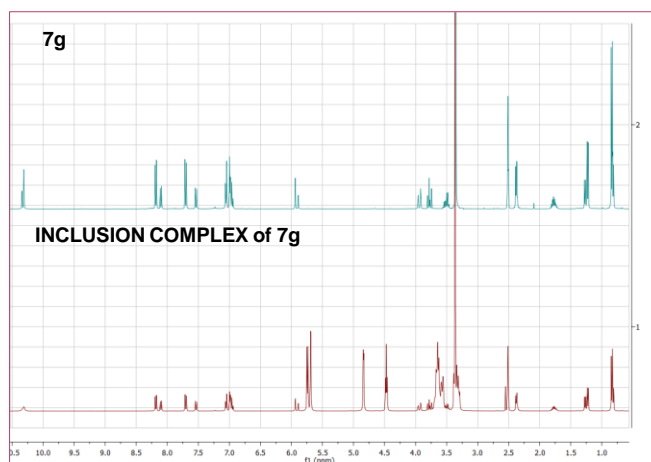
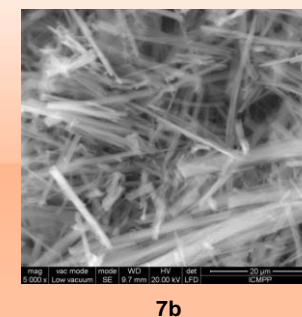
- ✓ thiazolidin-4-one derivatives of ibuprofen were included in β -cyclodextrin complexes by co-precipitation (1:1 M) and lyophilization methods
- ✓ the inclusion complexes were characterized using spectral methods such as infrared analysis (FTIR), NMR spectroscopy and phase solubility studies
- ✓ the surface morphology was studied using scanning electron microscopy (SEM)

RESULTS

Phase solubility diagrams



Morphological characterization using SEM



CONCLUSIONS

- 4 complexes based on cyclodextrins and originally ibuprofen derivatives were obtained and characterized
- these can confirm the theoretical premises for an improved pharmacological and safety toxicological profile and can continue with future studies (in vivo biological evaluation of pharmacokinetic, analgesic and anti-inflammatory profile)

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