

MICROENCAPSULATION OF SOME GLUCOSINOLATES FROM *BRASSICA* FAMILY EXTRACTS BY β -CYCLODEXTRIN

Mariana Nela Ștefănuț^{1*}, Paula Sfirloagă¹, Cristina Moșoarcă¹, Daniel Ursu¹, Ana Maria Dabici¹, Adina Căta¹, Ioana Maria Ienașcu^{1,2}

¹National Institute of Research and Development for Electrochemistry and Condensed Matter, Dr. A. P. Podanu 144, 300569 Timișoara, Romania, Corresponding author's email address:

³"Vasile Goldiș" Western University of Arad, Faculty of Pharmacy, 86 Liviu Rebreanu, 310045, Arad, Romania
mariana.stefanut@gmail.com

Microencapsulation is defined as a process of packaging or the presence of protective active agents within a carrier material to improve delivery, maintaining integrity or increasing the solubility of active compounds into pharmaceutical or food products [1]. Our experiments tried to microencapsulate the glucosinolates in β -cyclodextrin from 70% ethanolic-water extracts of indigenous vegetables of *Brassica* family [2]: cabbage, acclimatized broccoli, cauliflower, black radish, and kohlrabi in order to protect the glucosinolates against hydrolysis to isocyanates or isothiocyanates and in order to increase their thermal resistance (e.g., frying). The microencapsulation process occurs by direct contacting of the 70% ethanolic-water extracts with β -cyclodextrin, under stirring, during 18-24 h, at 50-52°C and then evaporation of remaining solvent. The obtained powders were characterized by FTIR, RX, SEM images and spectral absorption/reflectance in order to demonstrated the encapsulation process (figure 1).

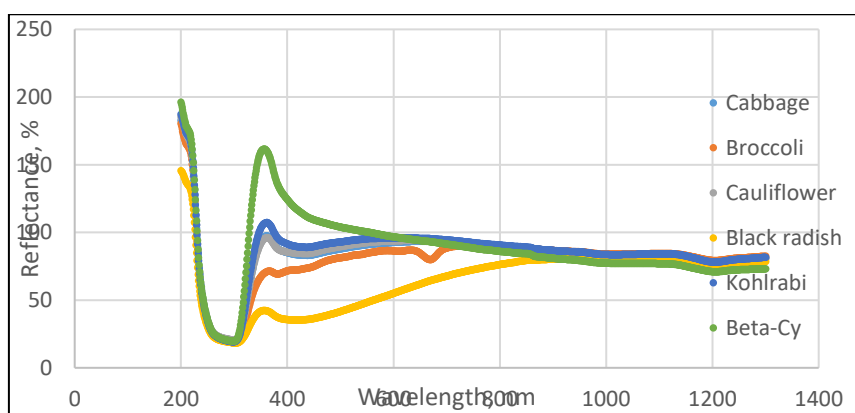


Figure 1. Spectral reflectance curves of complex β Cy-natural extracts

All studied powder complexes show smaller reflectance than β -Cy ($\lambda=367-376$ nm) and this can suggest the encapsulated process. All effectuated analyses sustain the microencapsulated process.

References

1. Pinho E. et al., Cyclodextrins as encapsulation agents for plant bioactive compounds, *Carbohydrate Polymers* **2014**, 101, 121-135.
2. Muntean D., Stefanut M.N., Cata A., Buda V., Danciu C., Banica R., Pop R., Licker M., Ienascu I.M.C., Symmetrical Antioxidant and Antibacterial Properties of Four Romanian Cruciferous Extracts, *Symmetry* **2021**, 13, 893 <https://doi.org/103390/sym13050893>.