ENCAPSULATION OF SOME GLUCOSINOLATES FROM CABBAGE AND BROCCOLI HYDROETHANOLIC EXTRACTS IN 2-ISOPROPYL-CYCLODEXTRIN AND γ-CYCLODEXTRIN

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Abstract

Plants contain many molecules who can contribute to healing of deseases of human organisms [1,2,3]. This study comprises the obtaining of some extracts from romanian cheap raw materials: cabbage and acclimatized broccoli and encapsulation of these extracts in natural and modified cyclodextrins in order to prevent the loss of their biologycal properties. The obtained complexes were characterized using FT-IR and XRD. The FT-IR spectra of the complexes showed a similar profile to the one of pure cyclodextrin. The decrease of intensity observed for some bands and narrowing of bands proved the formation of hydrogen bonds between the components of extracts and cyclodextrins. The XRD patterns showed an amorphous structure of the obtained complexes. The tools implied in the complexes characterization demonstrated the linkage between the host and guest substances.

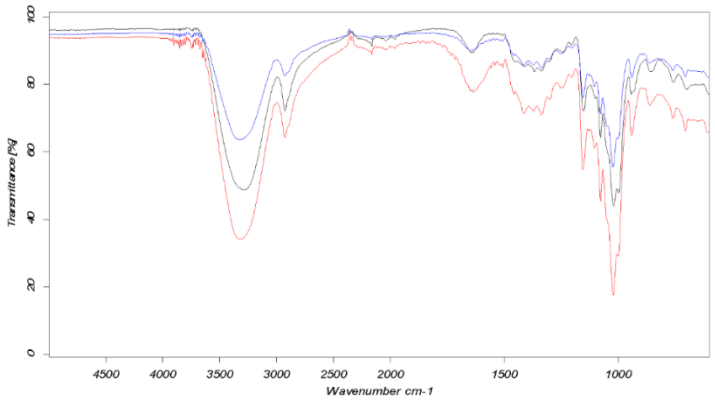

Figure 1. FTIR aspect of encapsulation of two extracts (cabbage and broccoli) in γ-cyclodextrin (black-γCD); (red Complex-γCD-broccoli); (blue- γCD-cabbage)

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References

[1] D. Muntean, M.N. Stefanut, A.Cata, V. Buda, C. Danciu, R. Banica, R. Pop, M. Licker, I.M.C. Ienascu, 13 Symmetry (2021), 893.