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SOFIA UNIVERSITY
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ABSTRACTS



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NON-TOXIC FOLATE- HEMOCYANIN CONJUGATES: SYNTHESIS,
STRUCTURE AND STABILITY

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Hemocyanins (Hcs), the oxygen transporting proteins isolated from mollusks and arthropods have shown good antineoplastic and cancer immunotherapeutic potential. Specific cancer targeting without affecting healthy tissues is an effective strategy to minimize the adverse effects of anti-cancer therapeutics. Hence, we propose a modification of hemocyanins isolated from the hemolymph of the garden snails *Helix lucorum* (HLH) with folic acid aiming to obtain biomolecules that are able selectively to target folate receptor-positive cancer cells in vitro. The conjugation of HLH with folic acid was carried out in two steps. The samples were purified by gel filtration chromatography. The degree of the modification was estimated spectrophotometrically by the differences in UV-vis spectra of non-modified and folate-conjugated HLH at 363 nm. Using ATR-FTIR spectroscopy we monitored some significant changes in the secondary structure of HLH that are due to the folate conjugation. Analysis of the DSC thermograms of the folate-HLHs in comparison to that of the native protein demonstrates that the thermal stability was not affected significantly as a result of the modification. The cell viability of human fibroblasts (BJ cell line) exposed to folate-HLHs in concentrations up to 2 mg/mL for 24/48h was preserved.

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