Ain Shams University
University College of Women
(Arts, Science, and Education)
Physics Department

# Characteristic Interactions of Propolis with Liposomal Phospholipids as a Membrane Model

By

*Rehab Taha Ahmad Taha*

For

**Ph.D. Degree in Science (Biophysics)**

A Thesis Submitted

To

**Physics Department**

**University College of Women (Arts, Science, and Education)**
**Ain-Shams University**

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# *APProval Sheet*

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Ain Shams University
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**Student name: Rehab Taha Ahmad Taha**

**Scientific degree:** Ph. D. Degree in Science (Biophysics)

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إلي زوجي الحبيب الذي أعانني حتي أتم هذا العمل وأمدني بالحب ،العطاء، الصبر، الامل ولتحمله لي طوال فترة الرسالة .

**مع شكري وحبي،،،**

**رحاب**

# Abstract

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Natural products are invaluable resource of anticancer drug discovery. They generally viewed as safe but weak, within the framework of nanotechnology, they can serve as template for potent anticancer drugs. This work first evaluated the cytotoxic activity of different propolis extracts (water, hydroalcohol, ethanol and hexane) in a number of cancer cell lines, then the solid nanoparticles from the organic solvent extracts were prepared and their cytotoxicity was evaluated as well. Finally, 1,2-dipalmitoyl-sn-glycero-3-phosphocholine (DPPC) and 1,2-dioleoyl-sn-glycero-3-phosphocholine (DOPC) liposomes were prepared from the most cytotoxic organic solvent extract and their cytotoxicity was also evaluated.

All results collectively showed that hexane extract and its solid nanoparticles as well as its liposomal form exhibited high cytotoxic activity. DPPC/DOPC-hexane extract cytotoxicity was selectively dependent on the cell line