

Effects of nano-liposomal drug delivery in treatment of breast cancer by paclitaxel

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Breast cancer is one of the most current cancers in women. This disease has 2nd rank in causes of woman's mortality. Paclitaxel (Taxol®) is an antineoplastic drug effective for breast cancer. In chemotherapy with this drug, two major subjects should be considered: its administration route and drug resistance. For improvement of the therapeutic index of paclitaxel, we used nano-liposomal drug delivery. Liposome keeps the drug against degradation and patient against side-effects of the drug. For preparation of liposome, certain ratio of lecithin and cholesterol was mixed and added to paclitaxel. For increasing the stability, efficiency and solubility, the resulted mixture was PEGylated by poly ethylene glycol 2000. The encapsulation efficiency for nano-liposomal paclitaxel and PEGylated nano-liposomal paclitaxel were measured as 99.84% and 99.98% respectively. This study demonstrated that the IC₅₀ factor for PEGylated nano-liposomal was more than nano-liposomal drug. IC₅₀ factor of these two formulations were also better than conventional drug.

Biography

Maedeh Koochi Mofakhari Esfahani is a student in Master of Science in Chemical Engineering –Biotechnology Branch- at Islamic Azad University, Science and Research Branch. She is 28 years old who is working on Evaluation the effect of nanoliposomal Paclitaxel and Hydroxyurea on breast cancer cell line at Pasteur Institute of Iran.

Abdolhossein Qaderi has completed his M.Sc. in chemical engineering –Biotechnology Branch- at Islamic Azad University, Science and Research Branch. He is 27 years old who has published more than 5 papers in journals and he has 4 invention that patented in Iran. He is member of Iranian Elite Academy.

Seyed Ebrahim Alavi is a student in Master of Science in Chemical Engineering –Biotechnology Branch- at Islamic Azad University, Science and Research Branch. He is 26 years old who is working on Evaluation the effect of nanoliposomal Paclitaxel and Hydroxyurea on breast cancer cell line at Pasteur Institute of Iran.

Azim Akbarzadeh has completed his Ph.D in Chemistry from Ankara University and postdoctoral studies from Uksak Ehtesas Hospital Ankara. He is the Head of Pilot Biotechnology Department of Pasteur Institute of Iran. He has published more than 150 papers in reputed journals and 10 books.

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