

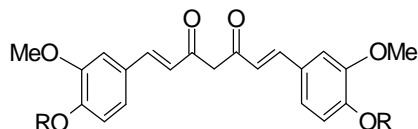
**DEVELOPMENT OF NEW CONTROLLED RELEASE
FORMULATIONS FOR THE DELIVERY OF A CURCUMIN
DERIVATIVE USING LIPOSOMES AND DENDRIMERS**

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Curcumin is the major component of turmeric a widely used spice derived from the dried rhizoma of *Curcuma longa* Linn. Curcumin and its analogues have been reported for several pharmacological activities such as antioxidant, antiinflammatory and anticarcinogenic. The high lipophilicity of those bioactive molecules is a major drawback on their in vitro and in vivo administration and the full exploitation of their pharmacological potential. Drug delivery of lipophilic bioactive molecules is a difficult issue as these drugs demonstrate water insolubility and poor pharmacokinetic properties. Dendrimers are highly branched macromolecules and like liposomes have been used as hosts for the delivery of bioactive molecules.

The overall goal of the present work is the development of controlled release systems for the delivery of the lipophilic curcumin derivative using the technology of liposomes and dendrimers. The curcumin derivative was incorporated in DPPC and Egg-PC/DPPG (9:0.1 molar ratio) liposomes and in Polyamidoamine (PAMAM) dendrimers [generation 3.5(carboxyl-terminated) and 4(amine-terminated)]. The incorporation efficiency and drug/lipid or drug/PAMAM molar ratios were estimated by the use of UV-Vis spectroscopy and High Performance Thin Layer Chromatography (Iatroskan). The particle size distribution and zeta-potential were studied using photon correlation spectroscopy.



R: H Curcumin (1,7-bis [4-hydroxy
3-methoxy phenyl]-1,6-heptadiene-
3,5-dione), (diferuloylmethane)
R: CH₃ Dimethoxycurcumin

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