

Preparation and evaluation of niosomes containing autoclaved *Leishmania major*: a preliminary study

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Background and Aims: In this study, different positively charged niosomal formulations containing sorbitan esters, cholesterol and cetyl trimethyl ammonium bromide were prepared by film hydration method for the entrapment of autoclaved *Leishmania major* (ALM). Size distribution pattern and stability of niosomes were investigated by laser light scattering method and ALM encapsulation per cent was measured by the bicinchoninic acid method. Finally, the selected formulation was used for the induction of the immune response against cutaneous leishmaniasis in BALB/c mice. Size distribution curves of all the formulations followed a log-normal pattern and the mean volume diameter was in the range 7.57–15.80 nm. The mean volume diameters were significantly increased by adding Tween to Span formulations ($p < 0.05$). The percentage of ALM entrapped in all formulations varied between 14.88% and 36.65%. In contrast to ALM, *in vivo* studies showed that the niosomes containing ALM have a moderate effect in the prevention of cutaneous leishmaniasis in BALB/c mice.

Keywords: Sorbitan esters; Cholesterol; Non-ionic surfactant vesicles; Cutaneous leishmaniasis