

Determination of adjuvant activity of novel squalene based oil-in-water emulsion adjuvants developed using self-emulsifying drug delivery system (SEDDS)

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High pressure homogenization including microfluidization and phase inversion are manufacturing methods used for preparing emulsions. But our study mainly focused on the development of o/w emulsions with simple self-emulsifying process that requires only stirring without the use of sophisticated equipments. Adjuvanticity of emulsions were assessed with *Mycoplasma hypopneumoniae* antigen. The ratio of Span® 80 and Cremophor® ELP was fixed at 7:13 and pseudo-ternary phase diagram was prepared to identify the self-emulsifying region. 3%, 5% and 10% squalene emulsions were prepared with deionized water. Furthermore, 0.01% (w/v) and 0.02% (w/v) carbomer solutions of C-971P NF and C-940 grades were also used to prepare emulsions. Altogether 15 emulsions were chosen and characterized by measuring particle size and zeta potential. Toxicity and immune response studies were done in BALB/c mice and blood samples of mice were tested for *Mycoplasma hypopneumoniae*-specific antibody titers. In our study, most of the emulsions exhibited droplet size in submicron size range and maintained throughout the period of 3 months. Majority of them maintained zeta potential values between -40mV to 0 mV. Emulsions could maintain their homogeneity upon gentle shaking. They showed no toxic effects and their immunogenic responses were good enough to compare with positive control-Montanide ISA™ 201.

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Biography

Rakesh Bastola has completed his bachelor's degree in Pharmaceutical Sciences (B. Pharm.) from Pokhara University, Nepal. He has been awarded with University Topper Medal by Nepal Pharmaceutical Association, Nepal and Dean's List Award by Faculty of Science and Technology, Pokhara University. He is currently doing his M.S. in Pharmaceutics in Keimyung University, Republic of Korea under the scholarship program known as "Korean Government Scholarship Program." He is working under the supervision and guidance of Prof. Sangkil Lee. He has published 1 paper in reputed journal.

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