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Assessment of adjuvanticity of novel mineral oil-based emulsion adjuvants with *Mycoplasma hypopneumoniae* antigens prepared using Self-Emulsifying Drug Delivery System (SEDDS)

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Microfluidization and phase inversion methods are commonly used for preparing emulsions. But we aimed to develop *M*o/w emulsions with simple self-emulsifying process without the use of expensive instruments. Adjuvant activity of emulsions were evaluated with *Mycoplasma hypopneumoniae* antigens. Initially, we fixed the ratio of surfactants Span® 80 and Cremophor® ELP at 7:13 and constructed pseudo-ternary phase diagram to identify self-emulsifying region. 3%, 5% and 7% mineral oil emulsions were prepared with de-ionized water and carbomer solutions of two grades C-971P NF and C-940 grades at 0.01% (w/v) and 0.02% (w/v) concentrations. 15 emulsions were selected and their particle size and zeta potential were measured. BALB/c mice were used for toxicity and immune response studies and blood samples were tested for *Mycoplasma hypopneumoniae*-specific antibody titers. In our study, droplet size of majority of emulsions were maintained in submicron size range throughout the period of 3 months. Also, most of them maintained their zeta potential values between -40 mV to 0 mV. Emulsions were easily redispersible upon gentle shaking. Very few of them showed toxic effects and their immunogenic responses were better than or comparable with positive control-alum.

Biography

Rakesh Bastola has completed his Bachelor's degree in Pharmaceutical Sciences (BPharm) 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 MS 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 one paper in reputed journal.

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