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## Double emulsions stabilized by the mixture of xanthan-sodium caseinate Effect of pH and formulation process

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Multiple emulsions are complex systems in which the droplets of the dispersed phase themselves contain small dispersed droplets [1]. There are two types of multiple emulsions: water-in-oil-in water (W/O/W) and oil-in-water-in-oil (O/W/O). Due to their multi-compartment structure, these materials have many applications in the pharmaceutical, cosmetic and food fields [2].

These emulsions are thermodynamically unstable. However, they can be kinetically stable over a significant period, which determines their lives. This stability can be performed by molecules of synthetic surfactants. However, the use of these surfactants causes severe toxicity problems in humans and animals and can have an environmental impact. There is currently a tendency toward replacing synthetic surfactants by natural molecules. Biopolymers such as proteins and polysaccharides are good examples of natural surfactants commonly found in the food industry and can be used in the pharmaceutical industry [3].

The objective of this study is to formulate multiple W/O/W emulsions by a mixture of natural biopolymers namely NC and XG using the direct process.

The stability of double emulsions prepared was conducted for 20 days at various storage temperatures. The effect of pH formulation on the stability of emulsions prepared was studied. Measurements of the apparent viscosity of each formulation were performed and compared with other work. In parallel with these measures, microscopic was performed about different systems formulated.

The results obtained showed that the emulsions made by the SN / GX mixture kept good stability for one month. This stability is a function of pH of external phase. The optimal pH for the formulation of these double emulsions is 5 or 5.5.

### Références

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