



## **Comparative Study of the Critical Differences Between Microemulsion and Nanoemulsion**

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### **Abstract**

Nanoemulsion and microemulsion are the two most favourable types of colloidal systems formed by nano-droplets with mean diameters of  $<200$  and in most cases  $<100$  nm. These nano-sized colloidal systems have been given a great deal of attention during recent years owing to the ability to solubilise a broad variety of either lipophilic or hydrophilic vitamins, antioxidants and other health-related phytochemicals which can modulate immune system response and prevent or delay various types of chronic diseases. Nanoemulsion and microemulsion systems offer long shelf life, ease in preparation and administration, high transparency, and tuneable rheological properties, just to name a few of their outstanding features. The main applications of nanoemulsions and microemulsions in food sector are the solubilisation, stabilization and delivery of poorly soluble bioactive compounds. However, it is of extreme importance to differentiate between these two colloidal dispersions. This impacts the most proper fabrication method, key factors affecting overall stability and subsequent applications of the developed system. The main aim of the present review is to critically discuss fundamental aspects, similarities, and differences between nanoemulsion and microemulsion with regard to terminology used to describe them, current preparation techniques and main factors impacting their stability.

Keywords: Delivery systems, Microemulsion, Nanoemulsion, Stability, Thermodynamic.

### **Biography: Atefeh Amiri-Rigi**

Atefeh Amiri-Rigi has completed her PhD course in 2016 and since then has lectured in different top universities for more than 15 semesters. At present, she is doing research as Postdoc as well as lecturing in University of Pretoria in the field of Food Science.