J Exp Food Chem 2016, 2:3(Suppl)
http://dx.doi.org/10.4172/2472-0542.C1.003



## Kinetics of stabilisation of oil in water emulsion using lecithin and biosilica

**Lanny Sapei, Olivia Poppy Damayanti** and **Liliana**
University of Surabaya, Indonesia

Emulsion is a thermodynamically unstable system which undergoes destabilization with time. The stabilization kinetics of Oil-in-Water (O/W) emulsions prepared using an emulsifier mixture of lecithin and bio-silica was studied. The effects of the concentrations of these emulsifier mixtures on the O/W emulsions' stabilities were studied. Additionally, the effect of storage temperature on the O/W emulsions stability in the presence of both lecithin and bio-silica was studied. Lecithin concentrations were varied from 0.05-1.5% and bio-silica particles concentrations were in the range of 0.5-3%. In general, emulsions destabilized with time and followed the first order kinetic model. The destabilization rates of emulsions in the presence of emulsifier mixture would decrease ~25-50% than the destabilization rates of emulsions in the presence of lecithin or bio-silica as sole emulsifier. Variations of lecithin and bio-silica concentration in the emulsifier mixture were not significant to the O/W emulsions destabilization. Furthermore, destabilization constants of O/W emulsions stored at the refrigerated temperature were ~2 times lower than those stored at room temperature.

lanny301@yahoo.com

## Milk and milk products: Role of acidification

**Maria Lucia Masson**
Federal University of Parana, Brazil

Milk and related products storage at refrigeration temperatures brought benefits to the dairy industry, because there was a reduction in product loss due to acidifying action of mesophilic bacteria. When the initial count of microorganisms is high, the storage at refrigeration conditions for extended periods (over two days, for raw milk, e.g.) causes the development of a subset of mesophilic called psychrotrophic which are capable of producing extracellular enzymes that resist heat resistant and its intense activity leads to loss of quality of milk and dairy products. One of the proposed technologies for controlling the growth of these microorganisms during the storage and acidification of milk are by carbon dioxide injection or carbonation acidification with lactic acid and lactobionic acid, among others. Studies indicate that carbon dioxide is an effective inhibitor on growth of psychrotrophic bacteria in raw milk and cheeses, colostrum and other products. Acidification technology employing CO2 is feasible to increase the milk's shelf life technically and improvement in the quality of milk and its related products can be another step towards the goal of making competitive products. The treatment for colostrum indicated but not yet established the effectiveness of CO2, while the action on uncured cheese typically (Minas cheese, e.g.) was established as well as to raw milk. The action of the lactobionic acid in cheese models brings interesting results on the topic, related to release of aroma's compounds.

m_mirlohi@hlth.mui.ac.ir