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ONLINE ISSN : 1881-3984

PRINT ISSN : 1344-6606

Food Science and Technology Research

Vol. 8 (2002) , No. 1 pp.36-41



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Factors Affecting the Properties of Ethanol-in-Oil Emulsions

[Qingyi XU](#)¹⁾²⁾, [Mitsutoshi NAKAJIMA](#)¹⁾²⁾, [Hiroshi NABETANI](#)¹⁾, [Sosaku ICHIKAWA](#)³⁾ and [Xinqi LIU](#)¹⁾

1) *National Food Research Institute*

2) *Institute of Agricultural and Forestry Engineering, University of Tsukuba*

3) *Institute of Applied Biochemistry, University of Tsukuba*

(Received: July 9, 2001)

(Accepted: December 7, 2001)

Factors affecting the rheological properties and stability of ethanol-in-oil (E/O) emulsion were studied. Emulsions prepared with lower ethanol concentration exhibited higher apparent viscosity, smaller droplet size and narrower droplet size distribution. However, decreasing ethanol concentration may cause a reduction in the amount of emulsified ethanol, facilitating partial separating out of ethanol. The effect of the degree of polymerization of polyglycerol esters of oleic acid on E/O emulsions was investigated with decaglycerol esters of oleic acid (MO-750), hexaglycerol esters of oleic acid (MO-500), and tetraglycerol esters of oleic acid (MO-310). The efficiencies of the emulsifying agents were evaluated by measuring their interfacial activity and ability to stabilize E/O emulsions. Although no significant differences in the interfacial tension values were recognized, the stability of the emulsions increased with the degree of polymerization of the emulsifying agent. Besides sunflower oil, soybean oil and olive oil can also be used to prepare stable E/O emulsions. The characteristics of the emulsions were determined.

Keywords: [ethanol-in-oil emulsion](#), [polyglycerol esters of oleic acid](#), [apparent emulsion viscosity](#), [turbidity](#), [droplet size distribution](#)



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Factors Affecting the Properties of Ethanol-in-Oil Emulsions Qingyi XU, Mitsutoshi NAKAJIMA, Hiroshi NABETANI, Sosaku ICHIKAWA and Xinqi LIU, *FSTR*. Vol. **8**, 36-41. (2002) .

doi:10.3136/fstr.8.36

JOI JST.JSTAGE/fstr/8.36

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