

〈原 著〉

非イオン界面活性剤 (SpanおよびTween) の レモン油乳剤の安定性に及ぼす影響

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Effect of Nonionic Surface Active Agents (Span and Tween)
on Stability of Lemon Oil Emulsion.

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Numerous workers have studied the interactions between bacillis and preservatives etc. with surface active agents. It is generally considered that ionic surface active agents have potent inhibitory effects.

Little is known however, about the interaction between the oxidative inhibitants and surface active agents, and with regard to nonionic surface active agents, relative doses have not been reported.

We studied the oxidative effects of sorbitan fatty acid esters on the lemon oil in emulsion.

The determinations of oxidized lemon oil were carried out by estimating peroxide values and gas chromatography (GC).

GC analysis of lemon oil were carried out under the following conditions. Model : Shimadzu-4BM-PF, Detector: FID, Column : Glass column (3mmi. d×2m), Supporter : PEG-20M (10%) Shimalite, W. Column Temp.: 80—160°C (5°C/min), Carrier GAs : N₂ (60ml/min), Sample Size : 10μl.

Results are as follows.

- 1) The Terpene compounds in oxidized lemon oil were decreased and P-Cymenes increased.
- 2) Polyoxyethylene sorbitan fatty acid ester strongly inhibits oxidative activities.
- 3) Sorbitan fatty acid ester does inhibit. only to some extent the oxidative activities.
- 4) A large value of hydrophilic and lipophilic balance (HLB) of both the surface active agents inhibits the more potent oxidative activities rather than than the less potent ones.
- 5) Effect of critical micelle concentration (CMC) on the oxidative activities was identified.
- 6) Lemon oil in the fine emulsion of W/O type does not oxidize, while in coarse emulsions it does.