
Abstract No. 2

PaperTitle **PLASTIC MILK PACKAGING – LIPID OXIDATION AND ANTIOXIDANTS**

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ABSTRACT

Light-induced oxidation of lipids is a major cause of off-flavors development in pasteurized milk. The effect of packaging materials [glass, high-density polyethylene (HDPE), amber poly(ethylene terephthalate) (PETE), clear PETE, and clear PETE with UV block (PETE-UV) on light-induced off-flavor were evaluated. After exposure to fluorescent light (1100 - 1300 lx) for 18 d at 4°C, oxidation off-flavour was significantly lower when packaged in amber PETE versus other containers. Milk packaged in HDPE containers showed a significantly higher level of “oxidation” off-flavour than milk packaged in PETE-UV containers but not higher than clear PETE or glass containers.

In addition, flavor of milk were compared when packaged in the presence of antioxidants (α -tocopherol (TOC), ascorbyl palmitate (AP), butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA), and combinations thereof. When adding TOC (0.025%) and AA (0.025%) to milk, light-induced oxidation off-flavour was significantly reduced in comparison to unspiked milk after 10 h of light exposure (1100-1300 lx). Odour-active compounds associated with light-induced oxidation included 2,3-butanedione, pentanal, dimethyl disulfide, hexanal, 1-hexanol, heptanal, 1-heptanol, and nonanal. The addition of BHA (1%) and BHT (1%) in a single initial addition resulted in decreases in pentanal and hexanal odor, but not in heptanal and 1-heptanol odour, whereas the addition of TOC and AP decreased pentanal and heptanol odour, but not hexanal and heptanal odour.