Effects of Burdock (Arctium lappa L.) Extracts on Autoxidation and Thermal Oxidation of Lard

Moonjung Kim and Eunok Choe
Department of Food and Nutrition, Inha University, Incheon 402-751, Korea

Abstract. Effects of n-hexane, ethyl ether, ethyl acetate, and ethanol extracts of burdock (Arctium lappa L.) on autoxidation and thermal oxidation of lard were studied by determining peroxide values (PV), conjugated diene values (CDA), $\alpha$-tocopherol values (PAV), and fatty acid composition. Lard was stored at 60°C for 12 days in dark for autoxidation, or heated at 180°C for 20 hr for thermal oxidation. Ethyl acetate, ethyl ether, and hexane extracts of burdock decreased PV and PAV of lard during storage at 60°C for 12 days in dark. Lard added with n-hexane, ethyl acetate or ethyl ether extract of burdock showed lower CDA and PAV than that without burdock extract during heating at 180°C. Antioxidant effect of burdock extract on thermal oxidation of lard was superior to that of $\alpha$-tocopherol. Increase in content ratio of palmitic acid to linoleic acid with heating in hexane extract-added lard was much lower than that of lard without burdock extract. Ethyl acetate and n-hexane extract of burdock were most effective in decreasing autoxidation and thermal oxidation of lard, respectively. Increase in concentration of ethyl acetate and hexane extracts in lard lowered autoxidation and thermal oxidation, respectively.

Key words: burdock (Arctium lappa L.) extracts, lard, autoxidation, thermal oxidation