

Characteristics and fatty acid composition of milk fat from Saudi Aradi goat

ABSTRACT

Goat milk is the second most prevalent edible milk in Saudi Arabia and is one of the most prominently produced milks in the world. Few studies have focused on the physicochemical properties of goat milk fat (GMF). Samples of Saudi Aradi goat milk were obtained during the spring dairy season to determine the physicochemical characteristics and fatty acid composition of the GMF. The physicochemical properties of Saudi Aradi GMF were as follows: iodine value, 23.2 g of I₂·100 g⁻¹ of fat; saponification value, 213.2 mg KOH·g⁻¹ of fat; refractive index (25 °C), 1.4583; unsaponifiable matter, 0.54%; acidity, 0.52%; and peroxide value, 2.07 meq O₂·kg⁻¹ of fat. α -Tocopherol was the major tocol (70.9%), followed by β -tocopherol (22.02%). GMF had significant contents of polyunsaturated fatty acid (FA) (6.16%), conjugated linolenic acid (0.36%), saturated FA (67.04%) and branched FA (1.98%). The thermal profiles of the Saudi Aradi GMF samples were examined using a thermal gravimetric analysis (TGA) and differential scanning calorimetry (DSC). Saudi Aradi GMF showed some absorbance in the UV-C range. This study demonstrated that the milk fat from the Saudi goat has physically and chemically favorable properties, as well as good nutritional properties, as a source of essential fatty acids and fat-soluble vitamin E.

Keyword: Fatty acids; Goat milk fat; Physicochemical properties; Thermal analysis