

Abstract

Annatto dye is an orange-yellow pigment extensively used in dairy products. Studies were carried out to determine the stability of bixin (oil-soluble dye) during different treatments and processing in traditional foods of India. The annatto dye was exposed to heat treatments in a baking oven at 100, 150 and 180 °C for time periods up to 60 min; deep fat heating at 160, 180 and 200 °C for periods ranging from 30 to 120 s; microwave oven at 300 and 700 W for periods ranging from 15 to 60 s; and in a pressure cooker for a 15-min period. The losses in bixin concentration during these experiments were compared with the losses of bixin in the preparation of products like cakes, chegodis, biscuits and fried rice. The mass fractions of bixin lost were maximum when the dye was exposed directly to heating in a baking oven (0.54) and in deep fat heating (0.47). The mass fraction of bixin lost was 0.30 in cakes and negligible losses were observed in biscuits (0.015). In case of the deep fat fried snack, the dye leached in to the oil, which resulted in maximum loss (0.65). Microwaves did not affect the bixin in the dye when exposed directly or in the products. Pressure cooking resulted in mass fractions of bixin lost (0.25–0.33) comparable to those of other products.