Physicochemical properties of egg yolk powder from eggs of different types of bird

ABSTRACT

The goal of this study was to determine whether the physicochemical properties of egg yolk powders produced from eggs from different types of bird (Fighting chicken, Kampung chicken, Serama chicken, Leghorn chicken, Guineafowl, and Turkey) differ from each other and from those of commercial egg yolk powder. The powders were analysed to determine yield; proximate composition; colour, solubility; water holding capacity (WHC); and emulsion activity and stability. Egg yolk powders were prepared by separating the egg yolk manually followed by blast freezing and freeze drying. The weight of the egg ranged from 22.16 g for Serama to 66.25 g for Turkey. The lowest yield of egg yolk liquid was found in Leghorn egg (27.63) and highest in Serama egg (44.31). Egg yolk powder yield was also lowest for Leghorn eggs (12.85%) , followed by Turkey (15.85%), Guineafowl (16.22%), Kampung (16.48%), Fighting (16.62%), and the highest for Serama (18.92%). All parameters studied except WHC differed significantly ($p < 0.05$) among at least some of the different egg yolk powders. Egg yolk powder from Serama chicken had the highest protein content (40.77%), lowest fat content (51.96%), highest solubility (20.20 oBrix), and lowest WHC (79.78 %). Egg yolk powder from Fighting chicken had the highest emulsion activity (54.13%) and that from Leghorn chicken had the highest emulsion stability (48.41%). Egg yolk powder from Guineafowl had the highest yellowness intensity (72.21), whereas the value was lowest (35.84) for commercial egg yolk powder. In conclusion, physicochemical properties of egg yolk powder depend on the source of the eggs.