



616/E2

Air frying as a way to substantially lower fat content of snacks with desired quality attributes

N. N. G. Chiranthika,^{1*} O. D. A. N. Perera,¹ and H. L. D. Weerahewa²

¹*Department of Food Science and Technology, Faculty of Livestock, Fisheries and Nutrition, Wayamba University of Sri Lanka*

²*Department of Botany, Open University of Sri Lanka*

Frying is a highly prevalent and traditional cooking method which makes the food more palatable and desirable. Therefore, the consumption of fried food products has increased in Sri Lanka due to lifestyle changes and increased outside eating of a wide variety of delicacies from the world over. Studies revealed that the consumption of fried products leads to the development of non-communicable diseases. These issues have encouraged the industry to find new ways to produce products with low oil intake and without changing desirable sensory attributes. Air frying is a novel technique, which allows frying by minimizing or virtually eliminating the usage of oil. This study reports on air frying of “Bites” and compares: (1) the process dynamics of air frying with conventional deep fat frying and (2) the quality of products formed by the two processes in terms of physicochemical and sensory characteristics. Initially, a locally available snack (Bites) was prepared and then analyses were done according to the objectives. Based on the development of temperature profile, the deep fried sample took 4 min to reach the boiling point of water, whereas the air fried sample took nearly 16 min. The color and structure development in the two types of products also varied correspondingly. The oil uptake reached 2.42 ± 0.01 g/100 g defatted dry matter at the end of air frying from an initial product formulation value of 1.83 ± 0.05 g/100 g defatted dry matter. The deep fat fried product on the other hand attained 26.56 ± 0.02 g/100 g defatted dry matter. The oil uptake was analyzed using the Soxhlet fat analyzing method. Sensory analysis, which was done by 30 untrained panelists showed that the proper frying time for deep fat frying was 10 min, whereas it was 12 min in the case of air frying to obtain what the sensory panel saw as “acceptable products” ($p < 0.05$). A comparison of these acceptable (air fried and deep fat fried) snack products, however, showed significantly different sensory attributes ($p < 0.05$). In conclusion, air frying allows making of snack products, which are acceptable in sensory terms, but with substantially lower fat content; the sensory attributes of the two types of products are also significantly different.

E-mail: Chiranthika.gnn@gmail.com