**Use of Dip Dehydration to Lower Frying Time, Oil and Salt Contents of Deep Fat Fried Potato Chips**

Wan Mohd Fadli Wan Mokhtar1 and Keshavan Niranjan2

1PhD student at Department of Food and Nutritional Sciences, University of Reading, United Kingdom.

Email: [w.m.f.wanmokhtar@pgr.reading.ac.uk](mailto:w.m.f.wanmokhtar@pgr.reading.ac.uk); Phone No.: +447821431230

2Professor of Food Bioprocessing, Department of Food and Nutritional Sciences, University of Reading, United Kingdom

Email: afsniran@reading.ac.uk

**Abstract**

The removal of some water from potatoes by osmotic dehydration prior to frying is known to reduce the oil content of fried potato chips. However, this process introduces significant amounts of salt in the products. Our previous study proposed a novel variant of osmotic dehydration (called multi dip dehydration), which involves dipping the potatoes in a salt solution briefly and allowing the water to be lost by dripping or ambient air dehydration, either once or a number of times, can result in a product comparable to the osmotically dehydrated potato but with significantly lower salt content. This paper aims to investigate the effect of multi dip dehydration pre-treatment on frying of potato chips. The moisture, salt and oil contents, colour and texture of potato chips after deep fat frying were measured and compared. Potato slices (1.5 mm thickness and 50 mm diameter) were subjected to three different pre-treatments i.e. hot water blanching at 65oC for 5min (control), multi dip dehydration in NaCl (10% solution) for 40 min and osmotic dehydration with NaCl 10% for 40 min. Then samples were then fried at 170oC for 3 min before moisture, salt and oil contents, colour and texture were analysed. Results showed that multi dip and osmotic dehydration pre-treatments reduced frying time from 2.75 min to 2 min, significantly decreased oil content about 17% and also showed better colour. Meanwhile, samples treated under multi dip exhibited about 50% lower salt content than osmo-dehydrated samples, and thus can potentially yield a significantly healthy product option.