

## Pre-Drying Effects on the Quality of Frying Oil

**Authors :** Hasan Yalcin, Tugba Dursun Capar

**Abstract :** Deep-fat frying causes desirable as well as undesirable changes in oil and potato, and changes the quality of the oil by hydrolysis, oxidation, and polymerization. The main objective of the present study was to investigate the pre-drying effects on the quality of both frying oil and potatoes. Prior to frying, potato slices (10 mm x10 mm x 30 mm) were air-dried at 60°C for 15, 30, 45, 60, 90, and 120 mins., respectively. Potato slices without the pre-drying treatment were considered as the control variable. Potato slices were fried in sunflower oil at 180°C for 5, 10, and 13 mins. The deep-frying experiments were repeated five times using the new potato slices in the same oil without oil replenishment. Samples of the fresh oil, together with those sampled at the end of successive frying operations (1th, 3th and 5th) were removed and analysed. Moisture content, colour and oil intake of the potato and colour, peroxide value (PV), free fatty acid (FFA), fatty acid composition and viscosity of the used oil were evaluated. The effect of frying time was also examined. Results show that pre-drying treatment had a significant effect on physicochemical properties and colour parameters of potato slices and frying oil. Pre-drying considerably decreased the oil absorption. The lowest oil absorption was found for the treatment that was pre-dried for 120, and fried for 5 min. The FFA levels decreased permanently for each pre-treatment throughout the frying period. All the pre-drying treatments had reached their maximum levels of FFA by the end of the frying procedures. The PV of the control and 60 min pre-dried sample decreased after the third frying. However, the PV of other samples increased constantly throughout the frying periods. Lastly, pre-drying did not affect the fatty acid composition of frying oil considerably when compared against previously unused oil.

**Keywords :** air-drying, deep-fat frying, moisture content oil uptake, quality

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