

Frying stability of rice bran oil and palm olein

ABSTRACT

A study to measure frying quality and stability of rice bran oil (RBO) compared to palm olein (PO) was conducted. The oils were used to fry French fries continuously for six hours a day up to five days at a temperature of $185 \pm 5^\circ\text{C}$. Oil samples were collected and analyzed for free fatty acid (FFA), peroxide value (PV), smoke point, p-anisidine value (p-AV), iodine value (IV) and colour. At the end of the frying period for both oil samples, FFA, PV, colour and p-AV were increased whereas the IV and smoke point decreased. The rate of FFA formation of RBO was slightly lower which increased from 0.142% to 0.66% compared to PO which was from 0.079% to 0.93%. The PV of RBO showed consistent increased from 3.9 meq/kg to 13.4 meq/kg whereas PO with initial value at 3.4 meq/kg increased to 34.6 meq/kg on the fifth day. Smoke point of RBO and PO progressively dropped from 235°C to 188°C and 220°C to 178°C , respectively. The level of p-AV for RBO increased from 12.19 to 32.65 from the initial to the end of frying day whereas PO had higher rate of changes in p-AV which was from 10.45 to 60.75. The IV decreased over frying time where IV of RBO decreased from 94.5 to 66.5 while IV of PO decreased from 50.9 to 44.6. The colour of RBO showed increased in redness and yellowness but PO was darker at the end of the frying trial. In general, RBO showed better stability than the PO in deep frying of French fries.