

Encapsulating fish oil by spray drying with an adequate wall material was investigated to determine if stable powders containing emulsified fish-oil-droplets can be formed. In particular, the dextrose equivalent (DE) of maltodextrin (MD) affects the powder structure, surface-oil ratio, and oxidative stability of fish oil. The carrier solution was prepared using MD with different DEs (DE = 11, 19, and 25) and sodium caseinate as the wall material and the emulsifier, respectively. The percentage of microcapsules having a vacuole was 73, 39, and 38% for MD with DE = 11, 19, and 25, respectively. Peroxide values (PVs) were measured for the microcapsules incubated at 60 °C. The microcapsules prepared with MD of DE = 25 and 19 had lower PVs than those prepared with MD of DE = 11. The difference in PV can be ascribed to the difference in the surface-oil ratio of the spray-dried microcapsules.

CLSM images for MDs of three DE and vacuole percentage were shown. PV changes of these powders at 60 °C were affected with these powder vacuole structures.

