Drying method effect on DPPH antioxidant activity of the wild mushroom *Cyttaria espinosae*

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Among edible Chilean wild mushrooms, *Cyttaria espinosae* Lloyd (dihueñe) is recognized as an important economic source for collectors and by immunomodulatory activity. As it is a seasonal product, a drying method is required for its preservation. Drying is normally used for preservation of several mushrooms, but the effect on the nutritional and no-nutritional characteristic depend of the method applied. The effect of freeze drying and convective air at 50°C on dihueñe antioxidant activity measured by DPPH assay was evaluated. The dihueñe samples were harvested in Teodoro Schmidt and Cunco areas, Region of La Araucania, Chile, and the fresh mushroom analyze on the same day. The samples were classified into large (greater than 25 mm) and small (under 25 mm) size which present moisture content near to 85% wet basis (w.b.). An Operon Freeze Dryer -50°C was used for freeze drying and reduce the moisture content to near 4% w.b. was 24 h. The convective air drying at 50°C was performed at 1m/s to reduce the moisture content to near 7% w.b. during 15 h. For antioxidant compounds extraction from dihueñe fresh (6 g) or dehydrated (1 g) sample was ground in a mortar and transferred to a bottle, and then pre-warmed (30ºC) methanol (20 mL) was added. The mixture was shaken in an incubator at 170 rpm and 30°C for 20 min and filtered by vacuum. The extract was protected from light and was used for the determination antioxidant activity by DPPH assay. Both freeze drying (1311-522 µmol Trolox Equiv./100 g dry matter) and convective air at 50°C (27-16) methods showed a loss on antioxidant activity by DPPH respect to the fresh mushroom (1919-2411), independent of the collection area and size of the dihueñe. These results are consistent with those reported by the literature for other mushrooms submitted to different drying methods. We conclude that freeze drying is the technique recommended to preserve the antioxidant activity of the *C. espinosae* because produces smaller decrease compared to convective air drying at 50°C.

Keywords: wild mushrooms, *Cyttaria espinosae, antioxidant activity.*

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