

EFFECT OF STERILIZATION METHOD AND SUPPLEMENTATION ON THE YIELD AND STORAGE LIFE OF OYSTER MUSHROOM CULTIVATED ON DATE PALM BYPRODUCTS.

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ABSTRACT

This study was conducted in the edible fungi production unit in the dept. of Hort. Coll. Of Argric. Univ. of Baghdad and in the project for the production of organic fertilizers and mushroom in Karbala / The National Center for organic Agriculture / The Ministry of Agriculture in Iraq, Starting in March / 12 / 2010 to use the date palm byproducts for the cultivation of the oyster mushroom (*pleurotus ostreatus* Jaq.Fr.) as a replacement for wheat straw. Date palm byproducts / as dry leaves (saaf), leaf base (Karba) and steam fibers (Leef) was used as substrates after they were milled and sterilized using chemical or physical methods. Commercial formaldehyde (2%) and bivestin (100 ppm) were used in the chemical method. Autoclave at 15 PSi and 121° C for one hour was used two times in the physical method. The three substrates were soaked for 20 hours in water containing 1 g / l nitrogen and 0.3g / l potassium for the two methods of sterilization. Moist and sterilized substrate were filled in plastic bags (1 kg) and used for spawning. Wheat straw was used as control and treated in the same way as the date palm substrates. Supplements of wheat bran, sawdust and crushed date seeds (Newa) was added to the substrates in three percentages : 0% , 10% and 20%. The three supplements were sterilized with the same method of sterilization of the substrates. The spawn of the white strain (PX22) of the oyster mushroom (50 g) was added to each bag and transferred to the incubation room at $25 \pm 2^\circ$ C for one month then to the growth room. The humidity was raised to 80-90% and the light to 400 Lux. The fruiting bodies were harvested and stored at the following degrees: $2 \pm 1^\circ$ C for 21 days or $8 \pm 1^\circ$ C for 14 days or $20 \pm 2^\circ$ C for 7 days. The results showed that the fresh yield, dry yield Biological Efficiency (BE) and the percentage of the protein in the fruiting bodies were increased significantly when the three date substrates (Leef, Karab or Saaf) were used compared with the wheat straw substrate. Protein concentration in the fruiting bodies was increased from 24.4% with wheat straw to 40.12% with the leef and 39.49% with the Karab and to 40.12% with the saaf. The results showed that the physical method of sterilization reduced the contamination of the substrate from 28.32% with the chemical method to 0.00% with the physical method and increased the fresh yield for all the three substrates from 473.09g/kg substrate to 639.09g / kg substrates for

chemical sterilization for the physical sterilization. Supplementation with newa increased fresh yield of all substrates significantly compared with saw dust and wheat bran. The result showed that cold storage at 2 ± 1 °C decreased the percentage of decay significantly compared with 8 ± 1 °C .Weight loss was decreased significantly during cold storage at 2 ± 1 °C compared with 8 ± 1 °C. The loss in protein content in the fruiting bodies were decreased significantly during cold storage at 2 ± 1 °C compared with 8 ± 1 °C. Marketing at 20 ± 2 °C increased weight loss and decay significantly compared with 8 ± 1 °C. We recommend that the oyster mushroom must be marketed in a cold shilves.

Keywords : iyster mushroom , supplementation , Date palm byproduct , Date palm seeds , weat bran.