

BIOLIVAL



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P 284 333

**Contribution à l'étude de l'activité biologique des extraits phénoliques des feuilles et des fleurs de la plante algérienne *Rosmarinus officinalis* L. contre certaines souches bactériennes.**

Amel BENBOTT , Camilia MOSBAH , Mouloud BOULAKHSSAIM

[Résumé](#)

P 285 574

***Pleurotus* species as a source of bio-preservatives.**

Chaima BOUZGARROU , Filipa S. REIS , Lillian BARROS , Noureddine CHATTI , Isabel C.F.R. FERREIRA , Anabela MARTINS

[Résumé](#)

P 286 585

**Nutritional value, chemical characterization and cytotoxicity in human tumor cell lines of desert truffles.**

Khira AMARA , Filipa S. REIS , Lillian BARROS , Fethia SKHIRI , Anabela MARTINS , Isabel C.F.R. FERREIRA

[Résumé](#)

***Pleurotus* species as a source of bio-preservatives.**

Chaima BOUZGARROU<sup>(1)</sup>, Filipa S. REIS<sup>(1)</sup>, Lillian BARROS<sup>(1)</sup>, Nouredine CHATTI<sup>(2)</sup>, Isabel C.F.R. FERREIRA<sup>(1)</sup>,  
Anabela MARTINS<sup>(1)</sup>

<sup>(1)</sup> Centro de Investigação de Montanha (CIMO), ESA, Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal.

<sup>(2)</sup> Institut Supérieur de Biotechnologie de Monastir, Avenue Tahar Hadded, BP 74, 5000, Université de Monastir, Monastir, Tunisia.

[bouzgarrou.chayma@gmail.com](mailto:bouzgarrou.chayma@gmail.com)

Mushrooms are consumed worldwide not only as a part of the normal diet, but also as a delicacy due to their highly desirable taste and aroma. In addition to their nutritional value, mushrooms have been considered functional foods [1] and even as adjuvants in some therapies, namely chemotherapy [2]. This is because they are natural matrices rich in bioactive molecules, such as phenolic compounds, tocopherols, ascorbic acid, or carotenoids. In particular, tocopherols are powerful antioxidants that can be explored as natural food preservatives, in order to replace the widely used synthetic counterparts.

With these aspects in mind, and given the evidence that the *in vitro* culture of mushrooms promotes the production of tocopherols [3], the present work aimed to sub-culture two different mushroom species by *in vitro* techniques, in order to enhance the production of tocopherols, and use the mycelium as sources of preservative ingredients for foodstuff. The species chosen for the study were two of the most consumed species worldwide, *Pleurotus ostreatus* (Jacq. ex Fr.) P. Kumm. and *Pleurotus eryngii* (DC.) Quéf.

Firstly, both mushroom species were cultivated in different culture media (*i.e.*, MMN complete, MMN incomplete and PDA), in order to optimize the ideal growth conditions. Since the best growth was obtained on PDA medium, both species were cultivated in PDB liquid medium, in order to obtain the amount of biomass required for the assays. After a period of approximately five weeks, the mycelia were recovered, freeze-dried and stored until further analyses.

The tocopherols content was evaluated by high performance liquid chromatography coupled with a fluorescence detector. A formulation enriched in tocopherols will be prepared by extraction from the mycelium and further incorporated in cakes. Its preservative capacity will be assessed, through the evaluation of the antioxidant and antimicrobial properties before and after incorporation in the foodstuff. The results will be compared with commercial available and used preservatives (*i.e.*, ascorbic acid- natural antioxidant and potassium sorbate- synthetic preservative).

**Keywords:** *Pleurotus* sp.; *in vitro* culture; Tocopherols; Natural preservers.

Retour

Sommaire