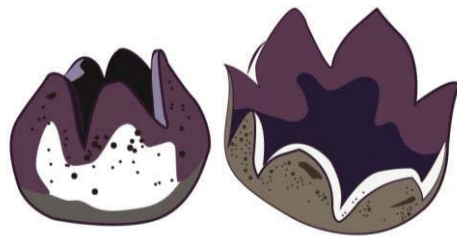


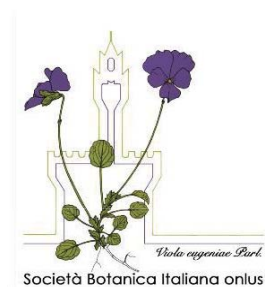
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Preliminary investigation on antioxidant, antibacterial and antiproliferative activities on *Pleurotus eryngii* var. *thapsiae*, as potencial source of bioactive compounds.

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Since ancient times mushrooms have been appreciated as food, and in more recent years their medicinal properties have been increasingly exploited. Apart from their use as simple foods, mushrooms are being explored as functional ingredients in the development of novel foods, mushroom-based products, and food supplements. Several studies on medicinal mushrooms have highlighted their wide pharmacological activities, including antioxidant, antimicrobial, anti-inflammatory, and antitumor properties. These pharmacological effects can be attributed to the rich bioactive metabolites composition found in fungi, primarily in the mycelium and sporophores (1).

The most studied molecules are phenolic compounds, proteins, fatty acids, terpenes, terpenoids, steroids, and vitamins (2). Several reports have also been conducted on polysaccharides, which are the structural components of the mushroom cell wall and exhibited a strong biological activity (3). Heteroglycans, peptidoglycans, and polysaccharide-protein complexes are polysaccharides that contribute to functional properties that mushroom are known to have, but the most abundant and well-known compounds are α - and β -glucans.

Pleurotus (Fr.) P. Kumm. is one of the most widely taxonomic group and include different cultivated and economically important mushrooms. These mushrooms are widely used in human nutrition all over the world and are also recognized as medicinal mushrooms. The genus includes facultative saprotrophs or biotrophs which grow in association with plants of the Apiaceae family, the *P. eryngii* species complex is undoubtedly noteworthy (4).

In this study, we focused on the use of *P. eryngii* var. *thapsiae* Venturella, Zervakis & Saitta, whose basidiomes grow in association with *Thapsia garganica* L. and have been currently reported so far only in Sicily (Italy). The basidiomes growing on two different substrates were used, the first based on wheat straw and the second based on a mixture of wheat straw and *Aegilops* spp., a common wheat weed. Aqueous crude extracts produced by two different techniques, conventional low-temperature, and ultrasound-assisted extraction, were used. These extracts were tested by radical scavenging activity (DPPH), thiobarbituric acid reactive substances (TBARS) formation inhibition, oxidative haemolysis inhibition assay (OxHLIA), antimicrobial (food and clinical bacteria and fungi) and antiproliferative assays on different human tumor cell lines. Preliminary results showed interesting antimicrobial activities against several Gram-positive and Gram-negative bacteria, including multi-resistant strains, as well as antifungal activities against *Aspergillus brasiliensis*. Regarding antiproliferative potential, very interesting results were observed against gastric (AGS), colorectal (CaCo-2), breast (MCF7), and liver (NCI-H460) cancer cell lines. Further evaluation of the biological activities and chemical characterization of polysaccharides within the extracts is in progress.

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