

**Original Article****Effect of the Crude Extract of Coprophilous Fungi on Some Bacterial Species Isolated from Cases of Mastitis****Jasim, A. S<sup>1</sup>, Abass, B. A<sup>1\*</sup>, Al-Rubayae, I. M<sup>2</sup>***1. Department of Microbiology and Parasitology, College of Veterinary Medicine, University of Basra, Basrah, Iraq**2. Department of Biology, College of Science, University of Basra, Basrah, Iraq*

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**Abstract**

Coprophilous fungi are a large group of fungi mostly found in herbivore dung and have an exclusive life cycle. This group of fungi produces many important metabolites which can be consumed in medicine or agriculture. The present study aimed to investigate the antibacterial effects of these fungi on bacterial mastitis. A total of 50 dung samples were collected from four herbivores (cows, buffalos, sheep, and camels) from different areas of Basra. The moist chamber method was used for each sample to establish a fungal fruiting body and detect the type of the fungi. The coprophilous fungi included *Aspergillus sp.* (*A. niger*, *A. fumigatus*, *A. flavus*, *A. terreus*), *Chaetomium sp.*, *Sordaria sp.*, and *Podospora sp.* which belong to the Ascomycetes class. PCR test was performed using the ITS region for confirmatory detection of species. The highest and the lowest number of isolated species was associated with cow dung and camel dung, respectively. The antimicrobial property of three different partitioned extracts (petroleum ether [F1], ethanol [F2], and water [F3]) prepared from some fungal mycelia was evaluated in vitro. All fractions were tested to detect antimicrobial activity using the disc diffusion assay against five pathogenic bacteria *Staphylococcus aureus*, *Streptococcus Enterobacter*, *Proteus mirabilis*, and *E. coli*. which is isolated from bovine mastitis. Data revealed that all fractions could inhibit the tested bacteria. However, inhibitory activity was found to be dependent on (i) the used fungal strains; (ii) the extracted solvent; and (iii) the tested bacteria. In general, the petroleum ether extracts (F1) derived from all fungi displayed the highest inhibitory activity against the testing bacteria. In conclusion, the present study concluded that the extracts prepared from the fungal mycelia contain bioactive compounds with antibacterial properties. This study was first conducted in Iraq and further studies are required to develop new treatments.

**Keywords:** Antibiotic activity test, Coprophilous fungi, Herbivore dung, Iraq**1. Introduction**

Coprophilous (dung-loving) fungi are a distinctive large group of saprophytic fungi modified to grow in herbivore dung (1). Coprophilous fungi are dung-inhibiting fungi and are more commonly found in domesticated farm mammals such as cow, sheep, buffalo, goat, and sheep; while, they are less prevalent in birds and wild mammals (2). Fungi that can develop and survive on herbivore dung form a limited group of microorganisms commonly known as coprophilous fungi (3). These fungi adapted to these rich and distinct

conditions and display exceptional morphological features as having a life cycle that begins during the grazing of herbivores on vegetation and foodstuffs. Although many fungi spores are ingested during feeding, most are destroyed under the high temperature and gastric juices in the gastrointestinal tract (4). The spores of coprophilous fungi protect themselves in various ways. Once they are excreted from the droppings, they are transferred to the plants and re-ingested by the herbivores to complete their life cycle. This ecological group includes highly specific species