The Effect of Fungi on Human Health

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Abstract

The current study aims to know the impact of fungi on human health, the harmful effects of fungi on human health, fungi, and what types of fungi infect humans. A questionnaire was created and designed via Google Drive and distributed on the social media network (WhatsApp) to residents of the Holy City of Mecca. 600 questionnaires were distributed and responses were obtained with 580 questionnaires, noting that the targets are (residents of the Holy City of Mecca, aged between 25-55 years), men and women. It concluded that fungi have a negative impact on humans in terms of their economic effects, such as food spoilage, and also their health effects. Therefore, caution should be exercised in dealing with fungi, avoiding harmful ones, and dealing with non-harmful ones.

Keywords: the effect, fungi, human health.

1. Introduction

Mycology is a part of biology attention with the systematic study of fungi, including their genetic and biochemical properties, classification, and use in humans as a source of drugs, foodstuffs, and psychotropic substances used for religious objective, as well as their dangers such as poisoning. The field of botany and the study of plant illness is also closely linked mycology because fungi are the main reason of many plant illness (1). The kingdom of fungi is the kingdom of microscopic organisms, single-celled, multicellular, and multiple organisms. It is described by a specific way of reproduction, as the concept of gender does not apply to it, but the shape or size of gametes is the product of males and females. Because fungi make female and male gametes, but fertilization takes place between two different species of the same species, and this

gives diversity to the fungi. Fungi are multicellular organisms, and we little find unicellular fungi. Among the most usual unicellular fungi, we find yeast, in addition to most of the fungi of the Endomycetales portion, which are all members of the Ascomycetes. Fungal cells include almost all the organelles that characterize the cells of eukaryotic organisms, as we find the Golgi apparatus, vacuoles, the endoplasmic reticulum, as well as mitochondria and most other parts. The fungal cell, contrast to the plant cell, does not contain plant starch (starch), but it does include animal starch (glycogen). Fungal cells, like their plant counterparts, are characterized by containing a cell wall collected mainly of chitin, which is the basic material in the composition of the cell walls of true fungi. The significance of the cell wall in fungi comes from it being a barrier between the external environment and the internal ingredients of the fungus, as the fungus is linked to the environmental environment in its entirety, and the presence of the wall here is the necessary preservation that the fungus resorts to, in addition to the fact that the cell wall acts as a regulator for the entry of large molecules. All fungi are heterotrophic because they do not include chlorophyll pigments: Obligate parasitic fungi: they live in nature parasitizing on special hosts that wear them, and they cannot live apart from their hosts, such as the fungus Plasmopara viticola. Facultatively parasitic fungi: they live in natural conditions, thriving on decomposed organic materials found in the soil. If these materials are not found, a host is found. Appropriately, they can parasitize it, such as some species of fusarium. Obligate saprophytic fungi: saprophytes live on decaying organic materials, whether plant or animal remains, such as the Penicillium fungus. Facultatively sprouting fungi: They usually live as parasites, but if they do not find a convenient host, they recourse to sprouting on decomposed organic materials in the soil. Symbiotic fungi: they live in symbiosis, that is, exchanging benefits with other living organisms, such as lichens, and they are symbiotic living between types of fungi. Nematodes and kinds of green algae or cyanobacteria, as well as mycorrhizae (mycorrhizal fungi), which is a collaborative connection between some sort of soil fungi and the origins of certain plants (2)(3). Fungi collapse organic materials into specimen products that can be cleared by plants, and thus they can break down some carbon materials, such as: 1-Plastic. 2- Some kinds of fungi are used as food initially: such as: Truffle, mushroom, Argon, Mushrooms, Mushroom, 3- It helps in making bread and some medicines that contain vitamin B. They are currently used in advanced engineering applications. 4- Penicillium mushrooms have medicinal importance as they are used: The chemistry called penicillin was produced. Manufacture of some types of cheese. 1- Some of it is used in the manufacture of some medicines, such as cortisone. It causes sickness in humans, such as skin illness such as: Athlete's foot (between the toes) is rise by Mycobacterium vulgaris. Ringworm disease Middle ear infections. 2- They cause diseases in animals: such as (some fungi that infect ants). 3- It reason diseases in plants: such as late blight in potatoes and tomatoes, caused by the oomycete fungus Phytophthora infestans. Wheat rust, A disease affecting corn. A wilt disease that affects cotton and tomatoes. Caused by: some parasitic genera of Fusarium. Early blight disease affecting tomatoes and potatoes. Cotton leaf spot disease. Caused by: some parasitic Alternaria genera. Cupcake wilt is a disease that affects about 300 species, including tomatoes, eggplant, cotton, and olives. In nature, fungi exist in symbiotic relationships with such diverse species as plants and algae, to form mycorrhizae and lichens, respectively. Fungi often reside in compound communities composed of multiple cell types, with biofilms as a predominant life form (4).

2. Material and Methods:

The is begun in (the holy city of Mecca in Saudi Arabia), writing the research and then recording the questionnaire in June 2024, and the study ended with data collection in August 2024. The researcher used the descriptive analytical approach that uses a quantitative or qualitative description of the social phenomenon (the effect of fungi on human health) The independent variable (the percentage of fungi's effect on the human body) and the dependent variable (the percentage of mycotoxins present in nuts) . This kind of study is characterized by analysis, reason, objectivity, and reality, as it is concerned with individuals and societies, as it studies the variables and their effects on the health of the individual, society, and consumer, the spread of diseases and their relationship to demographic variables such as age, gender, nationality, and marital status. Status, occupation (5), And use the Excel 2010 Office suite histogram to arrange the results using: Frequency tables Percentages (6). A questionnaire is a remarkable and helpful tool for collecting a huge amount of data, however, researchers were not able to personally interview participants on the online survey, answered the questionnaire electronically, because the questionnaire consisted of eight questions, all were closed,

3. Results and discussion:

The percentage of those who agreed to participate in the research questionnaire (the effect of fungi on human health) was 100%, and as for their ages, they were as follows: 25-34 years, with 35-44 years the same percentage at 28%, while the percentage of those aged 45-54 26%, 18% of those aged 55-60 years. As for the gender of the participants, it was equal, with the percentage of males and females being 50%. As for their nationalities, the percentage of Saudis was 96%, and non-Saudis were 4%. In terms of their professions, they were as follows: student 6%, careerist 18%, government employee 56%, private sector employee 2%, freelancer 18%. In terms of their education, it was as follows: primary 0%, intermediate 0%, secondary 8%, university 74%, master's 12%, doctorate 6%. As for the research questionnaire questions, their responses were as follows: The first question is: What do fungi do in the human body? 1- Itching 2- Pain 3- Skin irritation 3- Hair loss? Yes 98% and no 2%. The second question is: do fungi cause cancer? Yes 42% and No 58%. The third question: do fungi contain the carcinogen Afltoxin? 52.1% and 47.9%. The fourth question: are fungi contagious? Yes 90% and no 10%. The fifth question: Is the fungus transmitted from the wife to the husband? Yes 86% and no 14%. the sixth question: Can fungal infections spread throughout the body, including vital organs? Yes 90% and no 10%. The seventh question: What are the types of fungi that infect humans? 1- Candida 2- Thrush 3- Yeast infection 4- Perse and manum ringworm? Yes 91.8% and no 8.2%. The eighth question: Are fungi considered to have positives as well as negatives? Yes 72% and no 28%.

Table No.1: Percentage of male and female participants in the questionnaire

Percentage of males	Percentage of females
50%	50%

Table No.2: Ratio of Saudis to non-Saudis

Percentage of saudi	Percentage of non-saudi
96%	4%

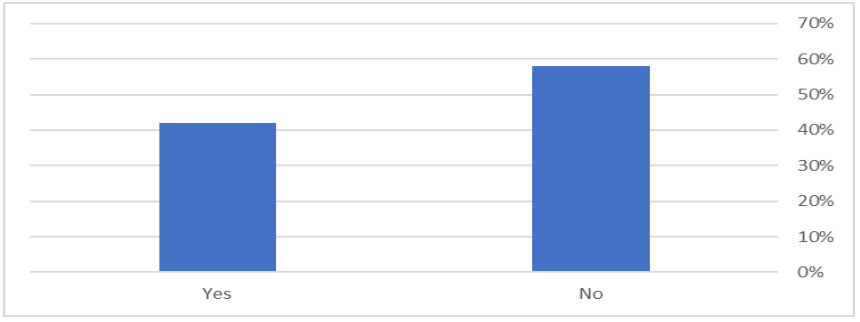

Figure No.2: Opinions and attitudes of participants on the impact of fungi on human health

4. Conclusion:

Based on the opinions of the participants on the effect of fungi on humans, that fungi lead in the human body to: 1- Itching 2- Pain 3- Skin irritation 3- Hair loss? Yes, by 98%, and fungi cause cancer. Yes (by 42%), and fungi contain Aflatoxin is a carcinogen, yes (52.1%). Fungi are contagious, 90%. The fungus is transmitted from the wife to the husband. B 86%. Fungal infections spread throughout the body, including vital organs, at a rate of 90%. Are fungi considered to have advantages and disadvantages? Yes, 72%. It found that It has been found that fungi have a negative impact on humans in terms of their economic effects, such as food spoilage, and also their health effects. Therefore, caution should be exercised in dealing with fungi, avoiding harmful ones, and dealing with non-harmful ones.

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WORKS CITED

Peñalva MA, Arst HN (September 2002). "Regulation of gene expression by ambient pH in filamentous fungi and yeasts". Microbiology and Molecular Biology Reviews. C. 66 p. 3: 426–46, table of contents. DOI:10.1128/MMBR.66.3.426-446.2002. PMC:120796. PMID:12208998.

Dr. Hassouni Jadoua Abdullah, Dr. Saba Riyad Khudair, Ashraf Sami Hassan, Environment, Animal and Plant Environment and Microbiology, Dar Degla Amman, 2015, p. 260.

Amer Abdel Fattah Al-Kilani, Natural Encyclopedia, Amman, 2014, p. 189.

Lagree K, Mitchell AP. 2017. Fungal biofilms: inside out. Microbiol Spectr 5(2):FU-0045-2016.NK-0024-2016. https://doi.org/10.1128/microbiolspec .FUNK-0024-2016

Alserahy, Hassan Awad, et al (2008), The thinking and scientific research, Scientific Publishing Center, King Abdul-Aziz University in Jeddah, the first edition

Al Zoghbi, Muhammad and AlTalvah, Abas (2000), Statistical system understanding and analysis of statistical data, first edition, Jordon- Amman