

# Isolation and Diagnosis of Fungi Associated with Poultry Feed in Iraq

Hebba F. Deli\*, Mohand M. Noori\*\*

\* Ministry of Science and Technology, Directorate of Agricultural Research, Baghdad, IRAQ

\*\* Department of Biology, College of Science, Al-Mustansria University, Baghdad, IRAQ

## Abstract

The results of the investigation of associated fungi have appeared to make many genes available from the new poultry population from the regions. A laboratory in Baghdad Governorate varied in terms of the types of fungi isolated and their frequency of presence in the studied. The quantitative fungal load of rhombuses. The genus *Aspergillus* was scored blind by a percentage of no presence and 100% silence in action B11, B13 and B17, among other things, recorded the sample B19 blind value for the quantitative fungal load that surprised ( $1910 \times 10^6$  cfu) while sample B12 recorded the lowest fungal load, which was ( $0.04 \times 10^6$  cfu). 7 isolates out of 17 produced aflatoxin B1, while isolate B6 was the most capable of producing aflatoxin B1.

**Keywords:** *Aspergillus*; Fungi; Poultry population

**Received:** 10 September 2023; **Revised:** 17 September 2023; **Accepted:** 24 September 2023; **Published:** 1 April 2024

## 1. Introduction

Fungi invade agricultural products when there are favorable conditions, temperatures and humidity in the field or during processing and storage. Several studies have shown susceptibility of Fungal contamination and with <sup>1</sup>. A survey of 28 fungal cultures, most of which are Species belonging to the genera *Aspergillus* and *Penicillium* companion to the stockpile samples. Isolated from representative samples 24 types and varieties of wheat, barley and rice corn stored in northern, central and south of Iraq<sup>2</sup>.

Enhanced contamination of livestock with fungal spores is a major concern Challenges facing the poultry feed industry Especially in the developing countries, especially in the lack of specialized technologies modern technologies for harvesting, drying, drying, drying, drying, drying, drying, drying, drying and drying cereal crops are the mainstay of the Khazam farming industry<sup>3-5</sup>. The company's specialty is the harvesting, drying, harvesting, drying, spinning and storing of cereal crops. The fungi produced for the microcosm <sup>6,7</sup>. isolated Czarina samples stocked with several fungal isolates. The most frequent fungal isolates are *Aspergillus flavus*, *Penicillium* spp and *Alternaria alternate*. It was found that out of 176 isolates of *Alternaria alternate* 156 isolates were positive for the fungal enzyme Acid Tenuzonc and Mazzeo *Alternaria alternate* 190 isolates of *A. flavus* isolates were 6 isolates were positive for Aflatoxin. <sup>8</sup>found that the sample size of the

of the studied isolates were 100% positive for by the fungus Moniliforme *Fusarium* and that these were 1FB producers. Fungal *Agrobacterium* sp*Aspergillus*<sup>9</sup> *Alternaria*, *Penicillium*, *Aspergillus* sp*Aspergillus* *Penicillium*, *Aspergillus* sp*Aspergillus* *Drechslera*, *Fusarium* sp*Aspergillus* and *Rhizoctonia* sp*Aspergillus* 10.86%, 17.39%, 21.74%, 27.17% 9.78%, 5.43%, and 2.17% of the *Aspergillus* sp*Aspergillus* *Fusarium* sp*Aspergillus* and *Penicillium* sp*Aspergillus* *Rhizopus* sp*Aspergillus* and *Alternaria* sp*Aspergillus* *Aspergillus fumigatus*, *Penicillium* sp*Aspergillus* and *Alternaria* sp*Aspergillus* 12.5%, 12.5%, 12.5% and 10% respectively. And theoretically the lack of control over the quality of the products offered in the Iraqi protected markets. Therefore, this study aims to analyses the quality of the products placed on the Iraqi market. The study was conducted to determine the presence of fungi associated with poultry feeds.

## 2. Materials and Methods

Nineteen poultry feed samples collected as a number of well-known in Iraq. During the first month of Ramadan, the first month of Ramadan 2009<sup>10</sup>. It was distributed in bags in the first two months of the year. It was distributed to the laboratory and kept in the laboratory and kept in the refrigerator at a temperature of 4 °C to preserve the

product for further use. Method Dilution was used to isolate the fungus, after the sample was thoroughly mixed, a second sample (10kg) was taken and distributed in a zigzag fashion. Reserve a 250 ml sled equipped with 250 ml sleds with a sterilized distilled sled. The sample was shaken very hard using a magnetic vibrator- For up to 5 minutes, so that the mower can be used for 10 minutes.. The sample is further enhanced with the help of a magnetic beam shaker.0 - suitable  $10^{-1}$  dilution. After that, dilution were conducted from  $10^{-3}$  to  $10^{-6}$ . Cal individually Petri dishes (catzer9szm) equipped with azure medium Potato Dextrose Acetate (PDA) (ppm 100), third to minimize dilution, applications were incubated for 5 days at a temperature of 25°C. Modified Hazardous Hazard Mitigation.

### 3. Results and Discussion

*Aspergillus* phylotypes were detected from 236 sites across 91 urban forest parks sampled in association with different tree species exhibiting decline symptoms (Table 1) as selected by high-resolution multispectral imagery. What stands out from this study is the *Aspergillus* species richness across the urban forest sites sampled and included *Aspergillus* species from eight clades. This provides strong evidence for urban forests being a conduit of potentially invasive *Aspergillus* species into natural environments. It also highlights the role human activities play in this conduit, as in urban areas human activities are numerous and varied. These results compare favorably with the 49 *Aspergillus* species known prior to this study to occur within Western Australia. So, finding all these species within a relatively small urban forest was very interesting. Previously, 25 of these *Aspergillus* species were isolated from urban forests, 21 from agricultural crops (7 from annual crops and pastures and 14).

Regarding the isolated fungi, the following types were isolated *Alternaria alternata*, *Aspergillus candidus*, *Aspergillus flavipes*, *Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus niger*, *Cephalosporium*, *Aspergillus*, *Cladosporium cladosporioides*, *Fusarium moniliforme*, *Mucor*, *Aspergillus*, *Penicillium citrinum*, *ASPERGILLUS chrysogenum*, *AS. cyclopium*

### 4. Conclusion

In concluding remarks, operation parameters of the *Aspergillus* extraction method employing ultrasonic waves; mainly ultrasonic frequency, freezing temperature and application time, are very important to control the minimum particle size of the extracted *Aspergillus*. This extraction method enables to produce *Aspergillus* with high structural purity as the particle size approximately be the same

as in the thin film sample. This was confirmed for the thin films prepared by physical vapor deposition methods and techniques. High reliability, high reproducibility and low cost of this method make it an optimum option for the extraction of *Aspergillus* from thin film samples.

fungi species	Isolation frequency rate	
<i>Alternaria alternata</i>	6	2
<i>Aspergillus candidus</i>	6	2
<i>Aspergillus crassamura</i>	5	2
<i>Aspergillus fluvialis</i>	6	2
<i>Aspergillus gonapodyides</i>	6	2
<i>Aspergillus gregata</i>	6	2
<i>Aspergillus inundata</i>	6	1
<i>Aspergillus kwongonina</i>	6	1
<i>Aspergillus lacustris</i>	6	2
<i>Aspergillus litoralis</i>	6	2
<i>Aspergillus moyoolj</i>	6	2
<i>Aspergillus rosacearum</i>	6	21
<i>Aspergillus walnut</i>	6	1
<i>Aspergillus thermophila</i>	6	2

### References

- Malla, M. A. *et al.* Understanding and designing the strategies for the microbe-mediated remediation of environmental contaminants using omics approaches. *Front. Microbiol.* **9**, (2018).
- Guevara-Avedaño, E. *et al.* Avocado rhizobacteria emit volatile organic compounds with antifungal activity against *Fusarium solani*, *Fusarium* sp. associated with Kuroshio shot hole borer, and *Colletotrichum gloeosporioides*. *Microbiol. Res.* **219**, 74–83 (2019).
- Krijgsheld, P. *et al.* Development in *aspergillus*. *Stud. Mycol.* **74**, 1–29 (2013).
- Vieira, F. C. S. & Nahas, E. Comparison of microbial numbers in soils by using various culture media and temperatures. *Microbiol. Res.* **160**, 197–202 (2005).
- Thenmozhi, R., Arumugam, K., Nagasathya, A., Thajuddin, N. & Paneerselvam, A. Studies on Mycoremediation of used engine oil contaminated soil samples. *Pelagia Res. Libr. Adv. Appl. Sci. Res.* **4**, 110–118 (2013).
- Colunga-Garcia, M., Magarey, R. A., Haack, R. A., Gage, S. H. & Qi, J. Enhancing early detection of exotic pests in agricultural and forest ecosystems using an urban-gradient framework. *Ecol. Appl.* **20**, 303–310 (2010).
- Paquet, C. *et al.* Are accessibility and characteristics of public open spaces associated with a better cardiometabolic health? *Landsc. Urban Plan.* **118**, 70–78 (2013).
- Sid Ahmed, A., Pérez-Sánchez, C., Egea, C. & Candela, M. E. Evaluation of *Trichoderma harzianum* for controlling root rot caused by *Phytophthora capsici* in pepper plants. *Plant Pathol.* **48**, 58–65 (1999).
- Kim, J. M. *et al.* Soil pH and electrical conductivity are key edaphic factors shaping bacterial communities of greenhouse soils in Korea. *J. Microbiol.* **54**, 838–845 (2016).
- Ettema, C. H. & Wardle, D. A. Spatial soil ecology. *Trends Ecol. Evol.* **17**, 177–183 (2002).