

MICROBIOLOGICAL CHARACTERISTICS OF ASCOSPHAERA APIS

¹Urinova Malokhatkhon, ²Bazarov Murat

¹Andijan Institute of Agriculture and Agrotechnologies

²Andijan Institute of Agriculture and Agrotechnologies, doctor of veterinary sciences, associate professor

<https://doi.org/10.5281/zenodo.10688795>

Abstract. *In this article, the structure and microbiological properties of *Ascospaera apis* fungus, which causes *Ascospheerosis* disease, are described in detail.*

Keywords: *honey bee with ascaferosis disease, bee larva, queen bee, male bee, frames, microscope.*

Introduction: In order to develop the bee family in the republic, the time demands the development and introduction of rapid technology of honey production, the introduction of scientific and technical achievements, advanced practices into beekeeping. Creating new breeds of bees and improving their breeding is also an important issue. It should be noted that most of the queen bees grown in our republic remain low-yielding.

Another challenge facing beekeepers is the constant fight against bee diseases and pests. Until now, the problems of Ascaferosis disease, American and European rot, varroa diseases, loss of wax moth, which is a very dangerous infectious disease, have not been fully resolved, practical measures for the fight against other predatory insects and birds have not been developed, bees prevention of various diseases and sanitary-veterinary control have not been fully established. Results: Microbiologically, the causative agent of ascospheerosis was studied in a humid chamber at a temperature of 32-36 °C. Materials were cultured on Saburo agar.

To study the morphological features of *Apis*, the nature of growth in the nutrient medium, the size and shape of the colonies, the dissolved nutrient medium is poured into a sterile Petri dish, and the glass slide placed in this way is covered. The middle layer is up to 2 - 3 mm. Fungal culture is planted in the middle of a glass slide using a bacteriological ring. A. While studying the morphology of the mycelial hyphae and fruiting bodies of *Apis*, the culture medium was cut along the edges of the glass slide, removed and placed on the stage of the MBI-15 binocular microscope. At the same time, a deposit of mycelium was removed from the surface of the nutrient medium and a drop of 50% aqueous solution of glycerol or lactophenol was placed on a glass slide. Studies were conducted on colonies of the fungus from one to ten days old.

Cultivation of fungi on B. Saburo agar showed the growth of A. *Apis* mycelia on the first day (Table 1). Convex white fluffy colonies with a diameter of 3.8 ± 0.3 and 3.9 ± 0.2 mm are visible on the surface of Saburo agar. The thickness of mycelium hypha is 1.2 ± 0.1 - 1.4 ± 0.2 μm . Cysts were not formed on the first day of mushroom cultivation.

2-3 days, respectively, at temperatures of 32 and 36 °C, the diameter is 48.7 ± 2.7 and 50.2 ± 2.8 microns, the thickness of the mycelial hypha is 4.3 ± 0.1 and 4.4 ± 0 , Fungal cysts of 2 m were formed. Blackening of the mycelium is observed in the center, spreading to the periphery.

The size of the colonies increases to 75 mm in 6-7 days.

On the 10th day, the diameter of the darkened part increases to 44-53 mm, the colony takes the appearance of a dark gray felt with a large amount of white mycelium along the periphery. The sizes of the cysts are 80.0 ± 5.0 - 81.3 ± 6.0 microns.

Table №1

Growth performance of *Ascosphaera apis* on Saburo agar ($M \pm \bar{m}$)

A day	Indicators	Temperature, °C	
		32	36
1	Colony size, mm	3,8±0,3	3,9±0,2
	Thickness of hyphae, mkm	1,2±0,1	1,4±0,2
	Cysts, mkm	–	–
2 – 3	Colony size, mm	16,0±1,2	16,2±0,3
	Thickness of hyphae, mkm	4,3±0,1	4,4±0,2
	Cysts, mkm	48,7±2,7	50,2±2,8
4 – 5	Colony size, mm	48,6±0,7	54,2±0,2
	Thickness of hyphae, mkm	5,6±0,2	7,8±0,1
	Cysts, mkm	71,0±4,2	71,5±4,3
6 – 7	Colony size, mm	75,0	75,0
	Thickness of hyphae, mkm	6,8±0,5	6,9±0,3
	Cysts, mkm	74,8±2,6	75,4±3,7
8 – 9	Colony size, mm	75,0	75,0
	Thickness of hyphae, mkm	8,0±1,9	9,2±1,9
	Cysts, mkm	75,0±8,9	88,5±8,0
10	Colony size, mm	75,0	75,0
	Thickness of hyphae, mkm	10,3±1,3	10,9±1,5
	Cysts, mkm	80,0±5,0	81,3±6,0

According to the results of the study of growth and development, as well as morphological characteristics, the isolated fungus was divided into the class Ascomycetes, family Ascospaeraceae, genus *Ascosphaera*, species *Ascosphaera apis* var. *Apis*.



Figure-1. A. The 1-2 day appearance of *Apis* is milky agar. Tk=32os.



Figure-2. A. 2-3 day appearance of Apis. Saburo Agar.

The formation of fruiting bodies is visible in the center of the colony. Tk=32os.



Figure-3. 10 day appearance of Apis. Milky agar. Tk=32os.

When laboratory animals (white mice) were infected with the causative agent of bee ascopherosis in experimental and control groups, no death of animals was observed. Pathological changes were not detected during the autopsy of white mice, and *Ascosphaera apis* was not isolated during mycological examination of internal organs of experimental animals.

Conclusion: Taking into account the fact that beekeeping is of great importance in agriculture, in this article, the methods of identifying and diagnosing the disease-causing fungus *Ascosphaera apis* are described in detail.

REFERENCES

1. Bazarov M.A. "ASALARICHILIK" fanidan o'quv qo'llanma «Slassic» nashriyoti 2023yil.
2. Bazarov M. A. «O'zbekiston Respublikasida asalari zararkunandalari va ularga integrsiya usilida qarshi kurash choralari» Monografiya ISBN 978-9910-763-55-7, «Slassic» nashriyoti 2023yil.
3. Isamammedov.A, Nikadambayev.X Asalari zararkunandalari. Toshkent 2013-yil.
4. Ikramov B.K., Safarov M.M., Salyamov C.J., Asalari kasalliklariga qarshi profilaktika tadbirlarini o'tkazishda shifobaxsh o'simliklardan foydalanish.
5. Lixotin.A.K., Grobov.O.F., (Bolezniivreditelipchyo) Moskva (Agropromizdat) 1989-yil.