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## Diagnosis of Cochlicella Barbara in Baghdad Governorate

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### ABSTRACT

Environmental and laboratory studies have been completed to investigate the presence and spread of Banded Conical Snail, *Cochlicella barbara*: Linnaeus, in the Iraqi environment. Laboratory studies have included the detection and diagnosis of living microorganisms that cause respiratory diseases to humans and small ruminants during the period of 2018 – 2020.

The results of the detection indicated the presence of the *C. barbara* cone snail in Iraqi environment. The results of the international diagnosis also confirmed this type of snail. The results of the laboratory examination suggest that this snail is an intermediate host of some nematodes which infect humans and some animals; and cause respiratory diseases. The *Neostrombulus lineairs* was extracted from this snail, which was identified in international scientific centres.

The results of this research can suggest the authorities of the Ministry of Health and Ministry of Agriculture to take the necessary measures to reduce the spread of this disease, and to raise the scientific awareness for doctors and specialists when diagnosing the causes of certain respiratory diseases.

## 1. INTRODUCTION

Infectious diseases are a significant burden for many societies, including states' member of World Health Organization (WHO).

To reduce this burden, an integrated approach is needed that combines between health empowerment and disease prevention. The prerequisite for success in this fight is the participation of all health-care and other health workers in a position to contribute significantly in reducing the burden on health sectors [1].

There are many viruses and pathogens transmitted by legumes (insects and their like) and another group of invertebrates, including crustaceans, mosquitoes, ticks, flies, molluscs and snails. They cause a viral infection that mainly affects animals. But it can spread to humans, and it is transmitted to humans through these organisms by sting or oral transmission. Thus, it enters the human bloodstream and causes disease [3].

Stated that the spread of cone snails, Banded Conical Snail, *Cochlicella barbara*: Linnaeus in Iraq is through cargoes from Australia, the home of this kind of snails, which attacks the sage crop and causes extreme effects [2].

Both [1] and [3] noted that the *C. barbara* cone snail is the host of some species of *Ascaris* that infect humans and animals and cause them disease.

## 2. WORKING METHODOLOGIES

1. Investigation of infestation: A survey of the presence of *C. Barbara* cone snails in south of Baghdad (Al-Mada'in) was conducted from October 2018 to September 2019 and samples were collected from home gardens.
2. Diagnosis: Samples of snails were placed in plastic tubes containing 90% alcohol. The samples were sent to the British Natural History Museum for accurate diagnosis. The samples were sent by Aramx International Rapid Mail.

## 3. RESULTS & DISCUSSION

Quantum Spread Investigation: Results indicate cochlear presence in home gardens, especially in thiel areas. Starting in December, and reaching the highest population density during February and March, this

snail is found at vegetation and bush during the night and descends at the surface of the soil by day. The cochlear climbs on some of the plants of the home gardens to feed, preferring to feed on fallen Naring fruits and being.

The purpose of this research is to draw attention to the seriousness of the *C. Barbara* cone snail as an intermediate family of certain nematodes that cause disease in humans and animals. This in turn serves sectoral stakeholders in the diagnosis and treatment of pathogens that is caused by this disease.

3.Isolation and diagnosis of nematodes living with snails: Five cropped cone snail were placed in a 9mm glass petri dish at its base. Drizzled water filtration paper containing 10 large wax worm larvae is a final development of *Galleria melonella* as a nematode trap. Two weeks later, the larvae were transferred to white trap to get the nematodes. The solution containing nematodes was placed in glass tubes and samples were sent for diagnosis at international scientific centres.

consumed with white pulp layer sparse (picture 1) [5] has stated that purebred snails are a pest on Australia's seeds crops, causing economic losses and moving with seeds through harvest vents because of their small size.



**Picture 1.** Nourishing on *Cochlicella barbara* fallen naring fruits



1. Diagnosis: The results of the diagnosis of samples which were sent to the British Natural History Museum showed that the cochlear is the cone snail: Banded Conical Snail *Cochlicella barbara*: Linnaeus, 1758 (Gastropoda: Cochlicellidae) (picture 2). The diagnosis was made by the Jon Ablett, a specialist under IAS 2019-3488, who mentioned that this is an alien to the Iraqi environment, native to Europe, and very widespread in Australia. It is considered a pest on the sage crop, causing serious damage. This confirms what [4] recorded the presence of this snail for the first time in the Iraqi environment in 2017.

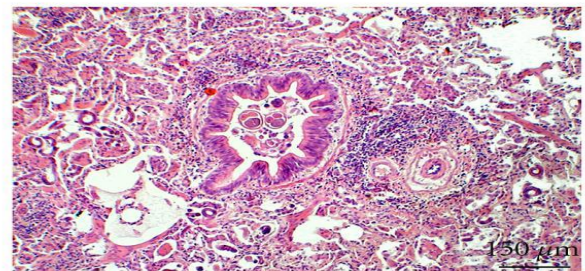
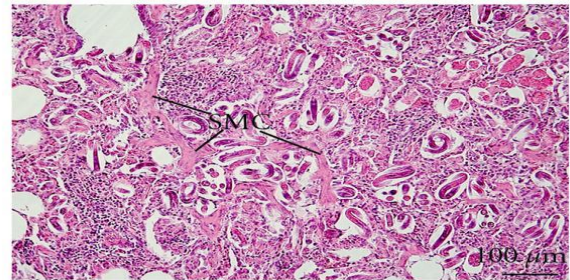
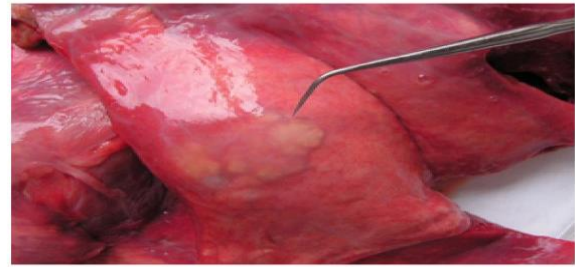
Nematoda (filamentous worms) living with cone snails *C. Barbara*: The results of the diagnosis indicated that the nematode living with the *C. barbara* cone snail was the species of *Neostromylyus linearis* [4] (Nematoda, Protostrongylidae). [6] stated that they are common cylindrical worm's endemic throughout the tropical region (picture 4 and 5). However, they are also found worldwide in all climates. Infectious filamentous larvae can penetrate the skin, infect the human host and young



**Picture 2.** Embossed cone snail *Cochlicella barbara*.

1- bodies and cause damage to the lungs (picture 3). The larvae migrate through soft tissue and enter the lungs through the bloodstream. The majority of the round worms above the bronchial tree migrate to the pelvis, swallow and enter the digestive system. The larvae can enter the circulatory system, return to the lungs and causing autoimmune infection. The entire life cycle of a heterosexual couple can be completed within a single parent [7] Control of cone snails *C. Barbara*

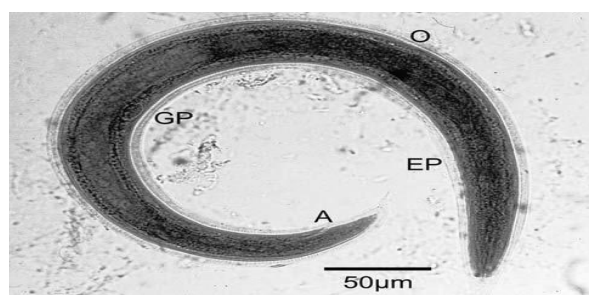
2. Kumar , [7] and (8) stated that Molluscicides are most effective in combating this snail when used with the attractive food graft containing frolic acid. This contributes to the lack of environmental pollution compared to the use of spraying pesticides alone. Iron phosphate, which is sold under many commercial names, can also be used as a safe use in terms of children, birds, fish, other wild animals, and domestic animals [9]. From the results of the research, the fruits of Naring can be used as an attractive taste with frolic acid in the fight against this snail.



**Picture 3.** Nematode infection of the lungs (*Neostrogulus linearis* Sheep). Panayotova-Pencheva, M. S. and Alexandrov, M. T. (2010).



**Picture 4.** *Neostrogulus linearis* Living with cone snails *Cochlicella Barbara*



**Picture 5.** Phase III nematode larvae *Neostromgulus linearis* OX, O (esophageal Oesohagus, GP (Genital primordium), EP (Excretory pore), A (Anus). Godan D. 1983

#### 4. CONCLUSIONS

Research results showed the presence and spread of *C. barbara* cone snails in the home garden environment in Iraq. This snail is an intermediate provider of filamentous worms *Neostromgulus linearis*, which follows the family Protostrongylidae. The previous studies and research suggest that snail affects the human race as well as young bodies. It causes respiratory damage, especially to the lungs.

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**Competing interests:** Authors state no conflict of interest.

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#### Arabic Abstract

تم الانتهاء من الدراسات البيئية والمختبرية للتحقق من وجود وانتشار الحلزون المخروطي النطاق *Cochlicella barbara*: Linnaeus في البيئة العراقية. شملت الدراسات المختبرية كشف وتشخيص الكائنات الحية الدقيقة المسببة لأمراض الجهاز التنفسي للإنسان والمجترات الصغيرة خلال الفترة 2018 – 2020 أشارت نتائج الكشف إلى وجود الحلزون المخروطي *C. barbara* في بيئة العراق. كما أكدت نتائج التشخيص الدولي وجود هذا النوع من القواقع. وتشير نتائج الفحص المختبري إلى أن هذا الحلزون يعد عائلاً وسيطاً لبعض الديدان الخيطية التي تصيب الإنسان وبعض الحيوانات؛ وتسبب أمراض الجهاز التنفسي. وتم استخراج ديدان *Neostromgulus lineairs* من هذا الحلزون والذي تم التعرف عليه في المراكز العلمية العالمية. ويمكن لنتائج هذا البحث أن تقترح على الجهات المختصة في وزارة الصحة ووزارة الزراعة اتخاذ الإجراءات اللازمة للحد من انتشار هذا المرض، ورفع الوعي العلمي للأطباء والمتخصصين عند تشخيص أسباب بعض أمراض الجهاز التنفسي.