Metazoan parasites of brown meagre (*Sciaena umbra* L. 1758) caught near Gökçeada, Turkey

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**1. Introduction**

The brown meagre, *Sciaena umbra* L. (Sciaenidae), is a benthic marine species living on rocky substrate, usually in caves and holes in inshore waters at a depth of 5–40 m, and feeding on benthic fish and crustaceans (1). This species is considered commercially important and is also very popular among sport fishermen. Brown meagre is cultured on a small scale in some Mediterranean countries such as Greece, and it may be a good alternative to gilthead sea bream and European sea bass (2). It shows a wide geographical distribution through the Mediterranean and Black Sea and along the Eastern Atlantic coast, from the English Channel to Senegal (1,3). Various studies were performed for the determination of the parasite fauna of brown meagre in different regions such as the western Mediterranean Sea. Some parasite species such as *Contracaecum fabri*, *Nerocila bivittata*, and *Praniza larvae* are the most common parasite species and are found in various host fish including brown meagre. Previously, no parasitological studies were performed on the parasite fauna of brown meagre in Turkey; only *Stephanostomum bicornatum* was reported in a previous study (8) in 1 of 3 brown meagre.

The aim of this study is to determine the parasite fauna of brown meagre and their infection rates, and to give a short description about the parasites found near Gökçeada, Turkey.

**2. Materials and methods**

The fish samples were caught with gill nets near Gökçeada, in the northeastern Aegean Sea, in Turkey, from July 2011 to January 2012. The sampling area is shown in Figure 1. After sampling, live fish samples were transported to the laboratory and kept in aerated tanks until parasitological investigation. For the parasitological investigation, fish samples were dissected; gills, intestines, and stomachs were removed and placed on separate petri dishes and then they were examined for parasites with a stereomicroscope under incident light. Live parasites were slightly compressed between a slide and a coverslip and examined under light microscope, and their photographs were taken. Some parasites were immediately mounted

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**Abstract:** This study was conducted between July 2011 and January 2012 in Gökçeada, Turkey, to determine the metazoan parasite fauna of brown meagre (*Sciaena umbra*). The metazoan parasite fauna of 53 brown meagre samples was investigated and a total of 7 parasite species ([*Anoiktostoma coronatum*, *Paracryptognomimus aloysiae* (Digenea), *Longicollum pagrosomi* (Acanthocephala), *Contracaecum fabri* (Nematoda), *Trachelobdella lubrica* (Hirudinea), *Nerocila bivirtata*, and *praniza larvae* (Isopoda)]) were identified. It was determined that *Paracryptognomimus aloysiae* was the dominant parasite species of brown meagre with the prevalence of 66.04% in this region. *Anoiktostoma coronatum* and *Paracryptognomimus aloysiae* were reported for the first time in Turkey.

**Key words:** Digenea, Nematoda, brown meagre, *Sciaena umbra*, Gökçeada, Turkey

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in glycerin jelly or placed in 70% alcohol solution, and slides were prepared after fixation. Measurements were taken with an ocular micrometer and BEL VIEW camera programs. Parasite samples recovered from fish samples were identified according to Petter and Radujkovic (9), Charfi-Cheikhrouha et al. (10), Bray et al. (11), Sağlam (12), Utevsky (13), and Anderson et al. (14). Infection rates of parasites were calculated according to Bush et al. (15).

3. Results and discussion
In this study, a total of 53 brown meagre samples were investigated parasitologically and 3 ectoparasite and 4 endoparasite species were detected. These parasite species, their sites of infections in the fish hosts, and their infection rates are shown in the Table.

3.1. *Anoiktostoma coronatum* (Wagner, 1852) Stossich, 1899 (Figure 2)
Body small (600–800 µm), oval to fusiform, oral sucker (100 × 120 µm) terminal, funnel-shaped, surrounded by a crown of large, sharp spines (number of spines 18–20). Ventral sucker (50 × 55 µm) is small, circular, situated close to middle of body. Prepharynx is very short, pharynx large, ovoid, esophagus long. Ceca terminated close to posterior extremity. Testes 2, large and ovoid (100 × 150

![Figure 1. Sampling area near Gökçeada coast, L: laboratory.](image)

![Figure 2. Total view of *Anoiktostoma coronatum*.](image)

**Table.** Parasite species from brown meagre (*Sciaena umbra*) near Gökçeada and their infection rates.

<table>
<thead>
<tr>
<th>Parasite species</th>
<th>Site</th>
<th>NEF</th>
<th>NIF</th>
<th>P (%)</th>
<th>NP</th>
<th>MI</th>
<th>Min–max</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Anoiktostoma coronatum</em></td>
<td>Intestine</td>
<td>53</td>
<td>16</td>
<td>30.19</td>
<td>179</td>
<td>11.19</td>
<td>3–25</td>
</tr>
<tr>
<td><em>Paracryptogonimus aloysiae</em></td>
<td>Intestine</td>
<td>53</td>
<td>35</td>
<td>66.04</td>
<td>510</td>
<td>14.57</td>
<td>3–30</td>
</tr>
<tr>
<td><em>Longicollum pagrosomi</em></td>
<td>Intestine</td>
<td>53</td>
<td>17</td>
<td>32.08</td>
<td>109</td>
<td>6.41</td>
<td>2–14</td>
</tr>
<tr>
<td><em>Contracaecum fabri</em></td>
<td>Intestine</td>
<td>53</td>
<td>5</td>
<td>9.43</td>
<td>17</td>
<td>3.4</td>
<td>1–5</td>
</tr>
<tr>
<td><em>Trachelobdella lubrica</em></td>
<td>Skin</td>
<td>53</td>
<td>1</td>
<td>1.89</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><em>Praniza larvae</em></td>
<td>Gill</td>
<td>53</td>
<td>9</td>
<td>16.98</td>
<td>56</td>
<td>6.22</td>
<td>1–9</td>
</tr>
<tr>
<td><em>Nerocila bivittata</em></td>
<td>Skin</td>
<td>53</td>
<td>1</td>
<td>1.89</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

NEF: Number of examined fish, NIF: number of infested fish, NP: number of parasites, P: prevalence, MI: mean intensity, Min–max: minimum–maximum intensity.
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µm), in hind body, slightly elongated. Ovary intracecal, in hind body, slightly lobed (80 × 85 µm). Uterus coiled from level of pharynx to close to posterior extremity in fore body and hind body. Vitellarium is follicular in its 2 lateral areas. Eggs small, ovoid, numerous (20 × 8 µm).

Anoiktostoma coronatum is host-specific to Sciaena umbra and is a rare and little-known cryptogonimid species. This species was found by Brooks in the Adriatic Sea (3) and by Bartoli et al. in Corsica (5). This is the first detection of Anoiktostoma coronatum in the Turkish coasts of Gökçeada, Aegean Sea.

3.2. Paracryptogonimus aloysiae (Stossich, 1885) (Figure 3)
Body small, long (600–1200 µm) wide (600–900 µm), rounded to oval. Oral sucker (110 × 120 µm) ventral-terminal; aperture surrounded by a row of numerous small spines (number of spines 75–80). Ventral sucker circular (90 µm in diameter), embedded in a sac. Prepharynx and esophagus short, pharynx ovoid, stout. Intestinal bifurcation lies between pharynx and ventral sucker. Ceca end close to posterior extremity. Testes 2, ovoid and intracecal. Ovary is in middle of body, intertesticular; multilobed. Uterus in hind body, extending close to posterior extremity. Vitellarium is follicular in its 2 lateral areas.

Paracryptogonimus aloysiae is the first species of this genus to be found in the Mediterranean region and is host-specific to Sciaena umbra (3,5). This is the first detection of this species from Turkish coasts.

Figure 3. Total view of Paracryptogonimus aloysiae.

3.3. Longicollum pagrosomi (Yamaguti, 1935) (Figure 4)
Longicollum pagrosomi (total length 8–12 mm, width 1.5–3 mm) is divided into presoma and trunk. Presoma (4–8 mm long) is also divided into proboscis and neck.

Figure 4. Longicollum pagrosomi: a) total view of female, b) trunk of male, c) proboscis.

Proboscis has arranged hooks, with 11–12 rows of hooks comprising 11–13 hooks each. Male has 2 spherical testes (2–2.5 mm in diameter). This species is orange-colored.

This acanthocephalan, with a Far Eastern origin, was first described in Trachurus trachurus from the Sea of Marmara by Oğuz and Kvach (16,17).

3.4. Trachelobdella lubrica (Grube, 1840) (Figure 5)
Small leeches (length 12 mm, width 0.3 mm). There are no tubercles on the body. The body is distinctly divided into the urostyle and the trachelosome. Trachelosome is slender. Urostyle looks inflated. Anterior and posterior suckers are small and inseparable parts of the body.

Trachelobdella lubrica occurs in warm temperate and tropical seas around the world, such as the Mediterranean, the Arabian Sea, West Africa, South Africa, and Australia (16). This species is parasitic on many fish species and has been reported from various fish species of the families Serranidae, Sciaenidae, Scorpaenidae, etc. (18,19). Trachelobdella lubrica was recorded from Scorpaena spp. in the Aegean Sea by Sağlam et al. (18), and from Labrus bergylta in the Sea of Marmara and Epinelphelus aeneus and Diplodus vulgaris in the Aegean Sea by Öktener and Utevsky (19).

3.5. Contracaecum fabri (Rud., 1819) (Figure 6)
This species, in the larval phase, is 10–30 mm long. Mouth with 3 lips, interlabially present. Esophagus 0.5–1 mm.

Figure 5. Total view of Trachelobdella lubrica.
long. The intestinal cecum short (0.05–0.07 mm) and the esophageal cecum long (0.6–1.2 mm).

*Contracaecum fabri* is not host-specific and is found in many species of fish. This parasitic species was found in 23 fish species around the Adriatic Sea (9). Observed in many fish species from the Marmara Sea, Aegean Sea, and Black Sea, it was also located in some species such as *Trachinus draco*, *Diplodus annularis*, *Pagellus erythrinus*, and *Mullus surmuletus* near Gökçeada (8,20).

3.6. *Nerocila bivittata* (Risso, 1816) (Figure 7)
This species, a well-known parasite on fishes, shows a wide distribution from the British coasts to the French coasts and from the Aegean Sea to the Sea of Marmara, and it is found on various parts of the body of many fish species, such as *Labrus merula*, *Dentex macrophtalmus*, *Scieana umbra*, and *Gobius niger* (21).

3.7. *Praniza larvae* (Figure 8)
Gnathiidae isopods live free in the adult phase; they are only parasitic during their larval phase and they are

![Figure 6. Contracaecum fabri: a) view of anterior extremity, b) view of intestinal and esophageal cecum.](image1)

![Figure 7. Nerocila bivittata: a) dorsal view, b) ventral view.](image2)
called praniza larvae. Their length is 10–25 mm. Praniza larvae are found as ectoparasites on body surfaces and buccal cavities of fish. They were reported from various fish species, such as *Serranus cabrilla*, *Mullus surmuletus*, *Sarpa salpa*, *Sciaena umbra*, *Diplodus annularis*, *Scorpaena scrofa*, and *Crenilabrus tinca*, in the Mediterranean Sea, Aegean Sea, Sea of Marmara, and Black Sea (8,22).

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**Figure 8.** Total view of praniza larva.

**References**