

Preliminary Study on Determination of Ephemeroptera Species of Gördes (Manisa) and Its Surroundings

Tuğrul ÖNTÜRK¹

¹Eskişehir Osmangazi University, Faculty of Arts and Sciences, Department of Biology, Eskişehir, Turkey
 Orcid: 0000-0002-6358-6112

*Corresponding author
 E-mail: tugrulonturk@gmail.com

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Abstract

Benthos samples were collected in 2019 from 5 previously determined stations on Gördes Stream. The samples were collected with the help of a scoop and sieved in 60 and 80 mesh sieves. As a result of the study, 7 taxa from Ephemeroptera were determined.

Key words: ephemeroptera, *Baetis* sp., Gördes, Manisa

INTRODUCTION

Gördes Stream emerges from the spring at the upper part of Gölpinar village and ends in Marmara Lake. It is one of the important branches feeding the Marmara Lake. In Gördes district, the local name is referred to as the Sand Stream, since sand extraction is carried out.

The dam lakes built on Gördes stream have significantly reduced the feeding of Marmara Lake. The long-term holding of water in the dam lakes, the insufficient discharge after the dam, and the rainfall scarcity experienced in recent years have caused significant decreases in both the flow rate of the Gördes spring and the water level of the Marmara Lake [4, 5].

There are two dam ponds on Gördes stream. The first of these is the one that has a very small weir structure and was built to provide irrigation support to agricultural lands. Gördes dam is a dam with a water holding volume of 5,500,000 m³, which was basically built to meet the drinking water of İzmir and then to irrigate agricultural areas.

Ephemeroptera species spend almost their entire life as nymphs in water. Afterwards, there is a very short period of youth and adolescence [1, 2, 3, 7].

MATERIALS AND METHODS

The samples collected with the help of scoops from the 5 stations shown in Figure 1, which we have previously determined, were passed through 60 and 80 mesh sieves. The obtained benthos samples were taken into 4% formaldehyde and brought to the laboratory. The coordinates of the stations are given in Table 1. Under a Seterio microscope in the laboratory; It was taken into a fixative consisting. For 500 ml samples extracted of 70% Alcohol, 10 ml of 40% Formaldehyde and 5 ml of Glycerine [9]. Afterwards, preparations for species identification were prepared and examined under a binocular microscope. The mouthparts, 1st and 3rd legs, and gills (first and last gills) of the specimens were perpetually prepared in Entellan for examination. As a result of the examination, a total of 7 taxa were identified, 3 taxa from Baetidae, 2 taxa from Ephemeridae and 2 taxa from Heptageniidae. In the diagnosis of samples; Lehmkuhl, 1979; Macan, 1979; Macan, 1980; Malzacher, 1984; Miall, 1985; Needham, 1927; Şahin, 1998; Tanatmış, 1988; Tanatmış, 1993; Traver, 1935; used [8, 9, 10, 11, 12, 13, 14, 15, 16, 17].

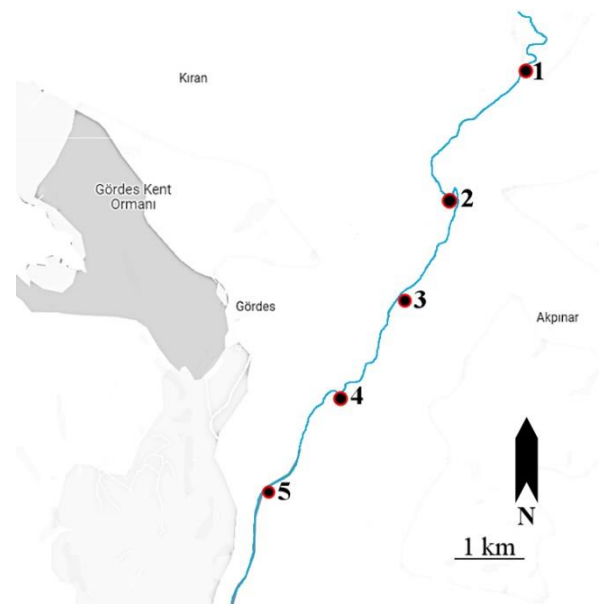


Figure 1. Sampled collected stations.

Table 1. Sampling stations coordinates.

Station number	Coordinate
1	38°58'11.5"N 28°20'36.8"E
2	38°57'03.3"N 28°19'42.8"E
3	38°56'04.2"N 28°19'01.6"E
4	38°55'14.2"N 28°18'23.8"E
5	38°54'20.1"N 28°17'37.3"E
6	38°58'11.5"N 28°20'36.8"E

RESULTS AND DISCUSSION

As a result of our study, 7 taxa were identified. The distribution of these taxa according to the stations is given in Table 2. 3 taxa were identified in Baetidae with the highest number of taxa. 2 taxa were identified in Ephemeridae and 2 taxa in Heptageniidae. At most Ephemera sp. type was detected in all stations. However, *Baetis alpinus* (Pictet, 1843) was detected only at station 1. Also, *Baetis rhodani* (Pictet, 1843) and *Rhithrogena* sp. species were detected in only 2 stations.

When we examine the distribution of the detected species according to the stations, *Baetis alpinus* (Pictet, 1843) prefers high altitude and cool flowing waters in summer. For this reason, at the station, which is at an altitude of approximately 1450 meters, the water temperature is between 19-20 degrees at most in summer.

Ephemera sp. type was detected in all stations. Since the species belonging to the *Ephemera* genus have a wide tolerance range, they can be found in all streams where the water quality is suitable. The lack of pollutant effect in the sampling area affects the distribution of ephemeroptera species. Polluting factors negatively affect ephemeroptera species distribution. Members of this group play a decisive role in water quality studies.

However, due to the inadequacy of research opportunities, samples from below could not be collected. As we mentioned above, Gördes Stream, which is one of the important branches feeding Marmara Lake, significantly reduces the water flow of the 2 dams, so the water level in Marmara Lake decreases. Of course, this is not the only factor. It is an important factor in the decrease in precipitation regime and drought in recent years.

As a result, the distribution of the species and the absence of pollutant effects in the environment affect the distribution. We think that this study will shed light on future studies.

Table 2. Distribution of Ephemeroptera taxa according to stations.

Taxon	Stations
Baetidae	
<i>Baetis</i> sp.	1, 2, 3
<i>Baetis alpinus</i> (Pictet, 1843)	1
<i>Baetis rhodani</i> (Pictet, 1843)	1, 2
Ephemeridae	
<i>Ephemera</i> sp.	1, 2, 3, 4, 5
<i>Ephemera danica</i> (Müller, 1764)	2, 3, 4, 5
Heptageniidae	
<i>Heptagenia</i> sp.	2, 3, 4, 5
<i>Rhiithrogena</i> sp.	3, 4

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