The karyotype of the parthenogenetic *Artemia* (Crustacea) from Sečovlje, Yugoslavia*

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Abstract

The karyotype of a parthenogenetic population of *Artemia* sp. living in the Sečovlje saltwork is tetraploid. It consists of 84 chromosomes.

Introduction

The genus *Artemia* comprises both bisexual species and parthenogenetic populations. The bisexual species are diploid (*A. franciscana* and *A. salina*, 42 chromosomes) or heteroploid (*A. persimilis*, 44 chromosomes), while the parthenogenetic population can be diploid (42 chromosomes), triploid (63 chromosomes), tetraploid (84 chromosomes), pentaploid (105 chromosomes) and heteroploid. Since the parthenogenetic females cannot be crossed to the males of the bisexual species, it is difficult to ascribe the parthenogenetic populations to the species known so far.

Of a large number of Istrian saltworks described in the report by Niccolich (1882), many do not exist any more (Izola, Piran, Fažana, Vrsar, Rovinj, Brioni, Capodistria). The populations of brine shrimp *Artemia* living in Istria have been reduced to only two present salters today: 'Lera' in Sečovlje valley, on the right bank of the Dragonja River near Portorož, and Strunjan (Fig. 1).

The first data on brine shrimp *Artemia* available in the world literature in Yugoslavia originate from saltworks of Capodistria (now Koper). Von Siebold (1873) reared *Artemia* from Capodistria in Munich aquarium and experimentally showed parthenogenesis. Brauer (1893) established 84 chromosomes. Artom (1906) reported that *Artemia* from Capodistria has 84 chromosomes (i.e. tetraploid) and reproduces parthenogenetically. Saltworks from Capodistria ceased to work about 1904 due to poor productivity and the land they were on, has been therefrom used for agriculture.

The brine shrimp *Artemia* from Portorož was studied by Abonyi (1915) and by Barigozzi (1944, 1946). Barigozzi (1946) described parthenogenetic *Artemia* from Portorož as mainly tetraploid (for a general review see Barigozzi, 1980).

Studies of the presence of brine shrimp *Artemia* in Yugoslavia began in 1983. The presence of parthenogenetic *Artemia* was established in saltworks in Sečovlje, Strunjan and Ulcinj (Majić and Vukadin, 1987) but the karyotype was not considered. The interest to investigate the Yugoslav *Artemia* lays in its increasing importance for practical use in mariculture.

Material and methods

Dry cysts of brine shrimp *Artemia* from 'Lera' (Sečovlje) were treated following the techniques worked out by Barigozzi and Baratelli Zambruni (1982). Freshly hatched nauplii, obtained from cysts put in artificial seawater, were treated on a slide with hypotonic solution (tapwater or 0.5% of sodium citrate) for 30–40
Results

Thirty-four nauplii were prepared and chromosome countings were made on 79 prophaes and metaphases (Fig. 2). The number of well spread mitoses, useful for counting, varies from nauplius to nauplius as usual (Barigozzi, personal communication).

In all cases the chromosome number was 84,