PREFACE

The major groups in the Animal Kingdom that have all or significantly a large number of species of parasites are Protozoa, Platyhelminthes, Nematoda, Arthropoda and a few others rather insignificant ones. Each of the group is extremely dynamic and very interesting structurally, biologically, pathologically and in so many ways. It is not possible to cover all these groups in brief, so I have chosen only one group i.e. Helminthology.

Ecologically, helminth group is the most diverse, it inhabits in the intestine of all vertebrate animals and causes serious diseases to the host. Thus, these helminth parasites are responsible for increasing the rate of mortality of hosts and decrease their food value.

A very little work has been done so far on the helminth parasites of vertebrates, in India as compared to wealth of the information available in the various parts of the world.

Yamaguti, Woodland, Baylis, Southwell, Moghe, Singh, Gupta and Johri are the Pioneers, who gave more emphasis on systematic and Morphology of the cestodes. Among the recent workers, working on Taxonomy, Histochemistry, Histopathology and Histomorphology are Pandey, Bhalerao, Siddiqui, Khambate, Sudhaprabha, Fotedar, Chisthi, Nama, Capoor, Hafeezullah, Shumasundari, Gupta, Shinde, Deshmukh and Jadhav.

Human depends on Biological resources for food, energy, construction, medicine, inspiration. Indeed, biodiversity and human have had a close and mutually supportive relationship for many years. The way societies have managed their resources determines how much diversity survives and the way that society manage biodiversity determines the productivity of important resources and ecological services. Human activities have helped to create substantial genetic and species diversity and have increased the diversity
of biological communities in particular regions through resource management practices and through domestication of animals.

Keeping in mind, the ecological balance, environment and food value of vertebrates, the author has undertaken the work on Morphology, Histopathology and Biochemistry of helminth parasites of Fishes and Birds from Jalna District.

**MATERIAL AND METHODS**

The author has dissected large number of fishes and birds to collect the parasites. The work of investigation was carried out from Jalna District M.S. India.

Cestode and Trematode parasites were collected and fixed in 4% formalin and bouins fluid for Taxonomy, Histopathology and Biochemistry respectively.

Nematodes were fixed in 10% glycerine alcohol. The specimens were examined in alcohol evaporated glycerine the end-on-view were mounted in glycerine jelly.

The drawings are made with the aid of Camera Lucida. All the measurements are in millimeters, unless otherwise mentioned.
Geographical Background of Research Place.

Jalna District

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>7612 sq. k.m.</td>
</tr>
<tr>
<td>Geographical position</td>
<td>1901 to 20.3 North Latitudes.</td>
</tr>
<tr>
<td></td>
<td>75.4 to 76.4 East Longitude.</td>
</tr>
<tr>
<td>Weather</td>
<td>Min. Temp. 10.50 D.C.</td>
</tr>
<tr>
<td>Average Rainfall</td>
<td>763 mm.</td>
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**Location and Boundries**

Jalna district is approximately situated at the center part of Maharashtra State and in northern direction of Marathwada region.

The Jalna district lies between 1901 North to 2103 North latitudes and 75.4 East to 76.4 East longitude. It covers an area of 7,612 sq. kms, which is 2.47% of the total state area.

District boundaries are adjacent to Jalgaon at north, Parbhani and Buldhana at east, Beed at South and Aurangabad at west.

The district has a sub-tropical climate, in which the bulk of rainfall is received from the southwest monsoon, between June to September. The average annual rainfall of the district ranges between 650 to 750 mm. The district often experiences drought with rainfall recording as few as 400 to 450 mm.

The rainy season is followed by kilter which last up to February, during which the minimum temperature ranges between 9 to 10°C and maximum temperature ranges between 30 to 31°C. the winter is followed by hot summer which continues up to June. The maximum day temperature ranges between 42 and 43°C’s during summer.
Jalna was formerly a part of Nizam state and after the Marathawada Mukti Sangram became part of India as a tahsil of Aurangabad district.

Jalna district erstwhile a part of Aurangabad district, was formed on 1st May 1982 by carving out Jalna, Bhokardan, Jafrabad, Ambad tahsil of Aurangabad district and Partur tahsil of Parbhani district. Jalna district covers an area of 7,612 sq. kms, which is 2.47% of the total state.

The district head quarter is at Jalna and well connected to state capital and national capital by broadguage railway line. Major towns of the state are also connected by state highways. Jalna district is wellknown for its hybrid seed processing industries, stell rerolling mills, bidi industry and agro based industries like dal mill. The district is also known for Jamb-Samarth, of Ghansavangi taluka, is birth place of Sant Ramdas Swami who was Guru of Chatrapati Shivaji Maharaj.

The author has choosen all the eight Tahsils for the collection of helminth parasites. These Tahsils are as follows:

**JALNA:** The Jalna city is situated on the banks of Kundalika river, (at latitude 190 50’ 42” north and longitude 75.56’ 15” east) is the premier commercial center of Marathawada region.

**BHOKARDAN:** It is the taluka head quarters situated along the river ‘Khelna’. The place is known for waving of woolly articles.

**JAFFRABAD:** It is the taluka head quarters.

**BADNAPUR:** It is the taluka head quarters and situated at the banks of river ‘Dudhane’. It is known for Agricultural Research Centre.
AMBAD: It is the taluka head quarter, which is well known for “Khandoba and Goddess Matsodhari Every Year” Navratra Mahotsva is celebrated on large scale.

PARTUR: It is the taluka head quarters which is on the railway route passing from Manmad to Kachiguda.

MANTHA: It is the taluka head quarters and very wellknown for cattle market.

GHANSAWANGI: It is the taluka head quarters, Jamb is one of the places of this taluka, which is the birth place of Sant. Ramdas Swami.

Last many decades, nobody has carried out this area. That’s why the Research Guide suggested to carry out the work in the same area so that to motivate the people about the importance of Helminth parasites and infections.

Indian Socio-economic structure integrated rural development, will encompass the measures by which productivity of animals could be enhanced. As there is a simple equation, less diseases more Animals.
Map Showing Location of Maharashtra State in India.
Map Showing Location of Jalna District in Maharashtra State
Map Showing Site of Collections in Jalna District

01 Bhokardan
02 Jafirabad
03 Badnapur
04 Jaina
05 Mantha
06 Ambad
07 Ghansavangi
08 Partur
Fish Market (Jalna)

Collection of parasites