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### RESEARCH ARTICLE

#### POPULATION DYNAMICS OF HELMINTH PARASITE IN FISHES FROM SOLAPUR AND OSMANABAD DIST (M.S) INDIA.

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#### Abstract

The present study deals with the population dynamics of helminth parasites in fishes from different places of Solapur and Osmanabad dist M.S (India) during August 2015 to July 2016. Helminth parasites were recovered from fishes. This report summaries the percentage of incidences, intensity, density and index of infection. The high prevalence occurs in summer season especially in the month of March and May, while low prevalence occurs in winter season followed by rainy season. The present study indicates the seasonal infection of helminth in fishes.

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#### Introduction:-

Fishes are important animals in ecosystem. They are useful source of human food as well as the source of income. These edible fishes are known to harbor a number of helminth parasite which cause deterioration in their health, hence their market and nutritive value is affected .Parasite can have a wide range of impact on the ecology of their hosts in terms of health (Atme and Owen, 1967) behavior (Milinski 1984, Moore 1984) sexual selection (Howard and Michella, 1990 Watve and Sukumar, 1977) and regulation of the host population (Freeland 1983) parasitic infection tends to decrease the growth rate of the fish. The damage caused by helminths to their hosts is generally related to intensity of infection and depth of parasite penetration with host tissue. Seasonal fluctuation, locality, age, size and sex of the host also determine the parasitic community diversity and burden. Polyanski, 1957 suggested that the diet, lifespan, mode of life, population density and size of the host are the main factors which determine the variety of parasitic species as well as intensity and prevalence of infection. Many authors have carried out studies on the helminth parasites and population dynamics of those occurring in Piscean host and work on different aspects of parasites. The study of population dynamics can be used as the biological basis of method to regulate population of parasite.

#### Material and Methods:-

The freshwater fishes are collected from fish market of different places of Solapur and Osmanabad dist. The helminth parasites were collected, preserved, processed to a permanent slide and identified under compound microscope while drawings are made with the aid of camera lucida. The identification was made with the help of "systema Helminthum" Vol II "Helminths of vertebrates" by Yamaguti (1961).

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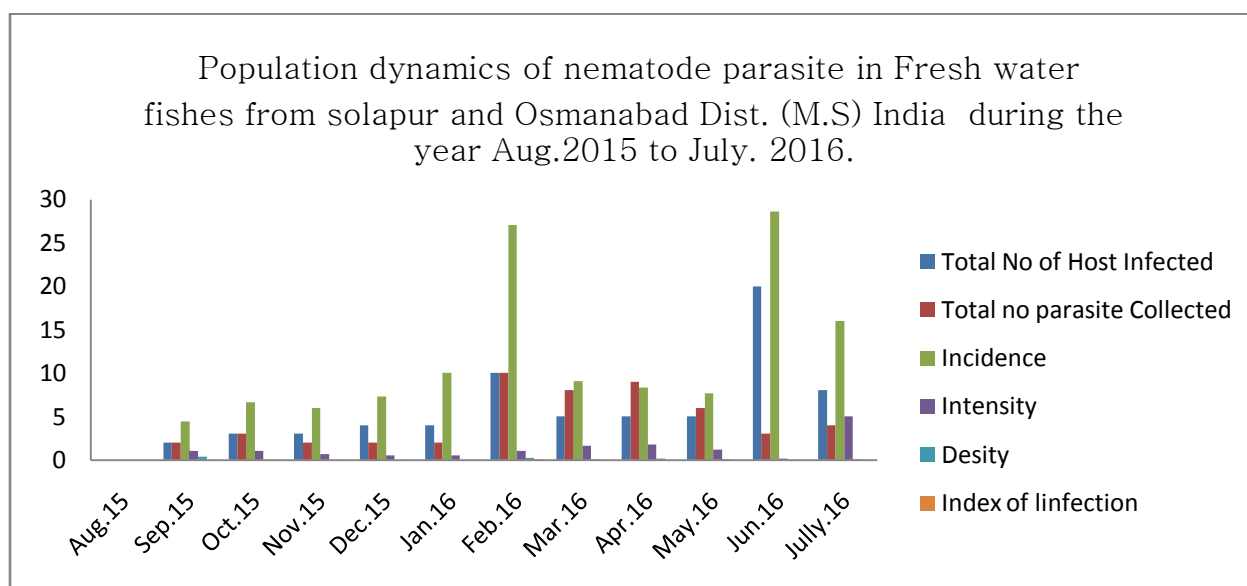
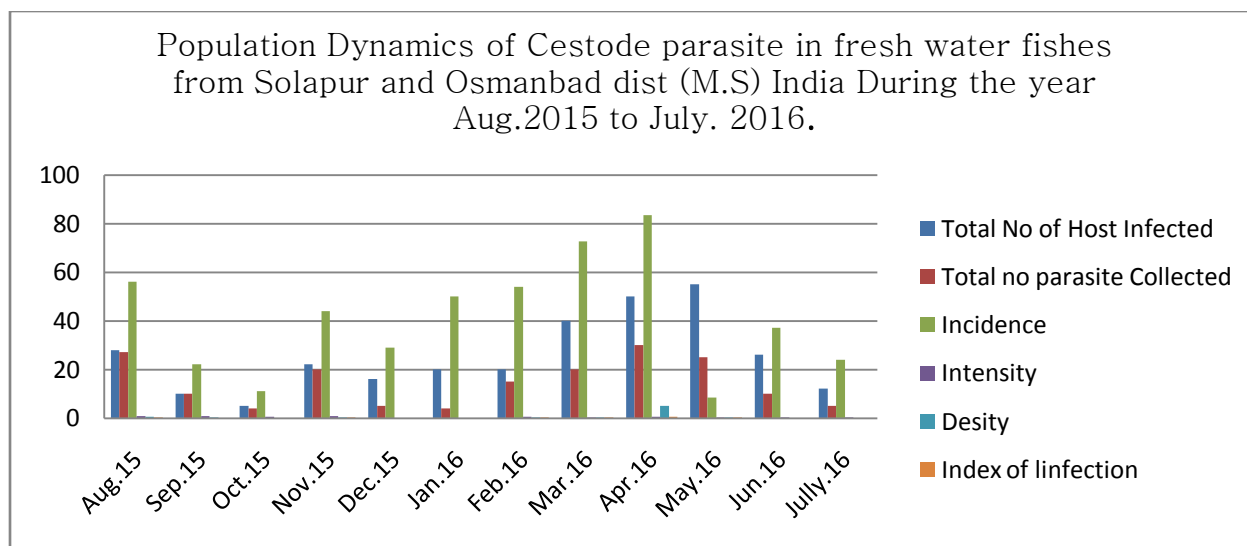
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**Population dynamics of helminth parasites were determined by following formula**

- Infected hosts
- Incidence of Infection =  $\frac{\text{-----}}{\text{Total hosts examined}} \times 100$
- Number of parasites collected in a sample
- Intensity of Infection =  $\frac{\text{-----}}{\text{Number of infected hosts}}$
- Number of parasites collected in a sample
- Density of Infection =  $\frac{\text{-----}}{\text{Total hosts examined}}$
- No. of hosts infected x No. of parasite collected
- Index of Infection =  $\frac{\text{-----}}{(\text{Total hosts examined})^2}$

**Population Dynamics of Helminth Parasite in fresh water Fishes from Solapur and Osmanabad District during the year Aug.2015 to July 2016**

Month	Name of Parasite	No Of Host examine	No of host Infected	Total No of Host Infected	Total no parasite Collected	Incidence	Intensity	Density	Index of infection	Habitat /locality
Aug.15	Cestode	50	32	28	27	56	0.96	0.54	0.302	Barshi
	Trematod			00	00	00	00	00	00	
	Nematode			00	00	00	00	00	00	
Sept.15	Cestode	45	17	10	10	22.2	01	0.22	0.049	Solapur
	Trematode			00	00	00	00	00	00	
	Nematode			02	02	4.44	01	0.44	0.0019	
Oct.15	Cestode	45	07	05	04	11.11	0.8	0.088	0.009	Osmanabad
	Trematod			00	00	00	00	00	00	
	Nematode			03	03	6.66	01	0.066	0.004	
Nov.15	Cestode	50	25	22	20	44	0.90	0.4	0.176	Yermala
	Trematod			00	00	00	00	00	00	
	Nematode			03	02	06	0.66	0.04	0.002	
Des.15	Cestode	55	20	16	05	29.0	0.312	0.09	0.0026	Ujani
	Trematod			00	00	00	00	00	00	
	Nematode			04	02	7.27	0.5	0.036	0.0026	
Jan. 16	Cestode	40	24	20	04	50	0.2	0.1	0.05	Kallamb
	Trematod			00	00	00	00	00	00	
	Nematode			04	02	10	0.5	0.05	0.005	
Feb.16	Cestode	37	30	20	15	54.05	0.75	0.40	0.219	Barshi
	Trematod			00	00	00	00	00	00	
	Nematode			10	10	27.02	01	0.27	0.07	
Mar.16	Cestode	55	45	40	20	72.72	0.5	0.36	0.26	Osmanabad
	Trematod			00	00	00	00	00	00	
	Nematode			05	08	9.09	1.6	0.14	0.013	
Apri.16	Cestode	60	55	50	30	83.3	0.6	05	0.416	Solapur
	Trematod			00	00	00	00	00	00	
	Nematode			05	09	8.33	1.8	0.15	0.0125	
May 16	Cestode	65	60	55	25	8.46	0.45	0.38	0.325	Ujani
	Trematod			00	00	00	00	00	00	
	Nematode			05	06	7.69	1.2	0.092	0.007	
Jun. 16	Cestode	70	46	26	10	37.1	0.38	0.14	0.053	Barshi
	Trematod			00	00	00	00	00	00	
	Nematode			20	03	28.57	0.15	0.042	0.012	
July 16	Cestode	50	20	12	05	24	0.41	0.1	0.024	Osmanabad
	Trematod			00	00	00	00	00	00	
	Nematode			08	04	16	05	0.08	0.0128	



### Result and Discussion:-

The analysis of data shows that the occurrence of helminth parasites variable according to seasons.

The high incidences, intensity, density and index of infection of all the helminth parasites occurred in summer season followed by winter season where as lower infections in monsoon season. The intensity varies greatly with respect to helminth parasites and host species, host size and feeding habitats, season and locality.

Rodhe, 1993 explained the temperature control parasitization. He explained the infections are more in warm seas than cold ones. Jadhav (1976, 2005 and 2006) explained the development of parasites should be needed high temperature, low rainfall and sufficient moisture. Hence the high prevalence occurs in summer followed by other season.

**Conclusion:-**

After the analysis of data the present study can be concluded that the high infections of helminth parasite (incidences, intensity, density and index of infection) are occurred in summer season followed by winter where as low in monsoon season. This type of results indicated that environmental factors and feeding habitat are influencing the seasonality of parasitic infection either directly or indirectly.

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