

# FLUORIDE CONTENT OF SELECTED AREAS IN AND AROUND PAVAGADA TALUK, TUMKUR DISTRICT, KARNATAKA

\*G. Manjunatha, \*\*B. E. Basavarajappa, \*E. T. Puttaiah.

\*Dept of Environmental Science, Kuvempu University, Shankaraghatta, Shimoga District

\*\*Department of Chemistry, Bapuji Institute of Engineering & Technology. Davanagere.

Corresponding author-Email- manjunathgssit@gmail.com

**Abstract :** The present investigation was carried out monthly for a period of four months, January to April to examine the variations in fluoride, pH and temperature of water sample selected areas of Pavagada taluk, Tumkur district, Karnataka. Excessive fluoride contents observed ranging from 0.5-1.6, pH 6.98-7.4 and permissible water temperature 34 to 39.0<sup>0</sup> C were noticed and concluded not permissible for human usage.

**Keywords** – Fluoride, pH, Temperature, permissible limits, Pavagada,

## INTRODUCTION:

Ground water is the principal source of drinking water in rural areas. Water is one of the most difficult substances to obtain impure state, because of its ability to dissolve different materials. Concentration of the pollution of the ground water is of much importance. Inadequate intake of fluoride causes various physiological disorders in humans Sahoo. et. Al. 2003; Maiti. et .Al 2004. Excess of it above 1.0 mg /l causes dental carries whereas permissible addition kills bacteria hence, it is important to monitor the fluoride status.

It is therefore , necessary that the quality of ground water should be maintained at regular intervals to observe the suitability of water for a particular use . This study reports fluoride contents of Pavagada Taluk. Tumkur district, Karnataka,

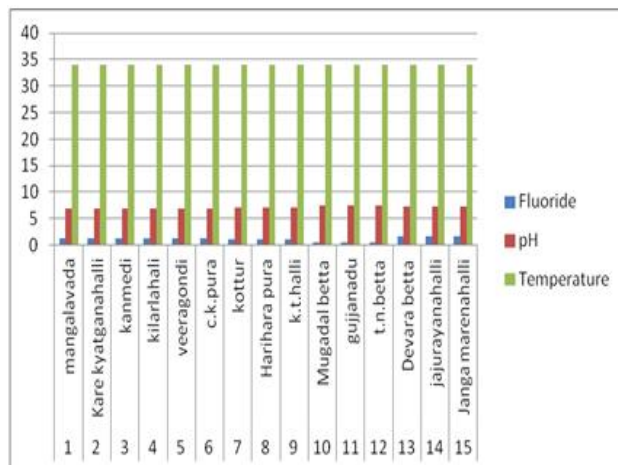
## MATERIALS AND METHODS:

The study area chosen for present investigation is Pavagada Taluk, one of the draught area, Tumkur Dist, 170 km from the capital city of Karnataka. About 15 samples from Pavagada Taluk were selected randomly band named as PS1-PS15. Collected samples were analyzed for fluoride contents, pH, water temperature (APHA 1998) and compared with the permissible limits classified using Indian standards ICMR and WHO.

## RESULTS AND DISCUSSION:

All the samples were analyzed monthly from January - April 2012 and found to be colorless, odorless, pH ranges from 6.98-7.4 water temperature 34 to 39.0<sup>0</sup> C and fluoride contents were given in table. 1 to Table- 4 and represented in Figure – 1 to Figure – 4. The average parameters were shown in figure-5. The fluoride contents found ranging between 0.5-1.6mg/l in respective samples. The maximum concentration of fluoride was reported in all the months from January to April.

**Figure - 1 Fluoride content, pH, Water temperature in January 2012**



**Table: 1. Fluoride content, pH, Water temperature in January 2012**

Sl no	Village	Fluoride	PH	Temperature
1	Mangalavada	1.2	6.98	34
2	Kare kyangahalli	1.2	6.98	34
3	Kanmedi	1.2	6.98	34
4	Kilarlahali	1.2	6.98	34
5	Veeragondi	1.2	6.98	34
6	C.K..pura	1.2	6.98	34
7	Kottur	1.09	7.08	34
8	Harihara pura	1.09	7.08	34
9	K.T..halli	1.09	7.08	34

## Publication History

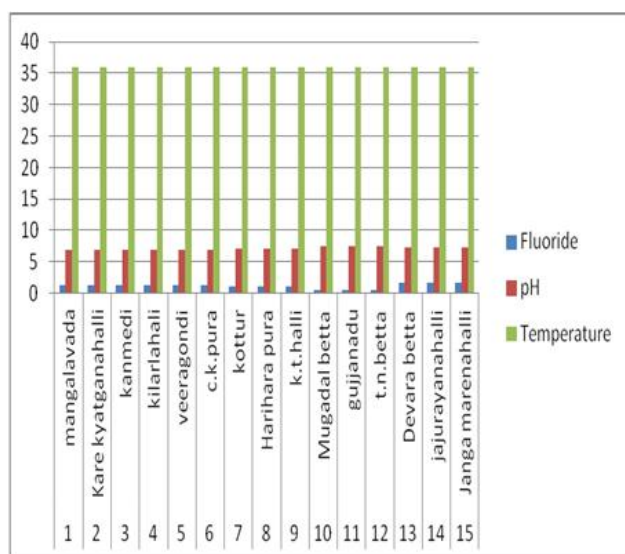
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10	Mugadal betta	0.5	7.4	34
11	Gujjanadu	0.5	7.4	34
12	T.N..betta	0.5	7.4	34
13	Devara betta	1.6	7.2	34
14	Jajurayanahalli	1.6	7.2	34
15	Janga marenahalli	1.6	7.2	34

**Table:2. Fluoride content, pH, Water temperature in February 2012**

Sl no	Village	Fluoride	pH	Temperature
1	Mangalavada	1.2	6.98	36
2	Kare kyatganahalli	1.2	6.98	36
3	Kanmedi	1.2	6.98	36
4	Kilarlahali	1.2	6.98	36
5	Veeragondi	1.2	6.98	36
6	C.K..pura	1.2	6.98	36
7	Kottur	1.09	7.08	36
8	Harihara pura	1.09	7.08	36
9	K.T..halli	1.09	7.08	36
10	Mugadal betta	0.5	7.4	36
11	Gujjanadu	0.5	7.4	36
12	T.N..betta	0.5	7.4	36
13	Devara betta	1.6	7.2	36
14	Jajurayanahalli	1.6	7.2	36
15	Janga marenahalli	1.6	7.2	36

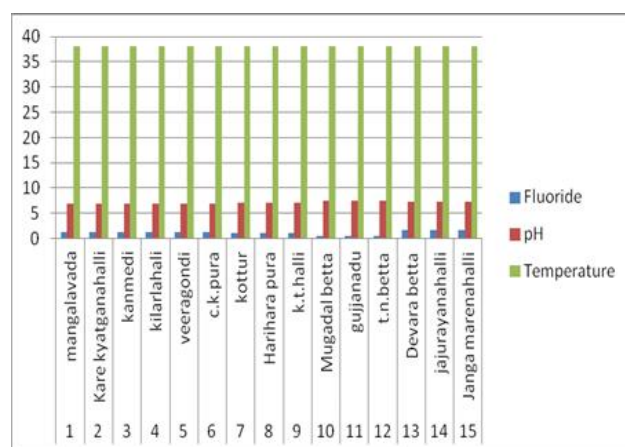
**Figure – 2. Fluoride content, pH, Water temperature in February 2012**



**Table:3. Fluoride content, pH, Water temperature in March 2012**

Sl no	Village	Fluoride	pH	Temperature
1	Mangalavada	1.2	6.98	38
2	Kare kyatganahalli	1.2	6.98	38
3	Kanmedi	1.2	6.98	38
4	Kilarlahali	1.2	6.98	38
5	Veeragondi	1.2	6.98	38
6	C.K..pura	1.2	6.98	38
7	Kottur	1.09	7.08	38
8	Harihara pura	1.09	7.08	38
9	K.T..halli	1.09	7.08	38
10	Mugadal betta	0.5	7.4	38
11	Gujjanadu	0.5	7.4	38
12	T.N..betta	0.5	7.4	38
13	Devara betta	1.6	7.2	38
14	Jajurayanahalli	1.6	7.2	38
15	Janga marenahalli	1.6	7.2	38

**Figure – 3. Fluoride content, pH, Water temperature in March 2012**



**Table: 4. Fluoride content, pH, Water temperature in April 2012**

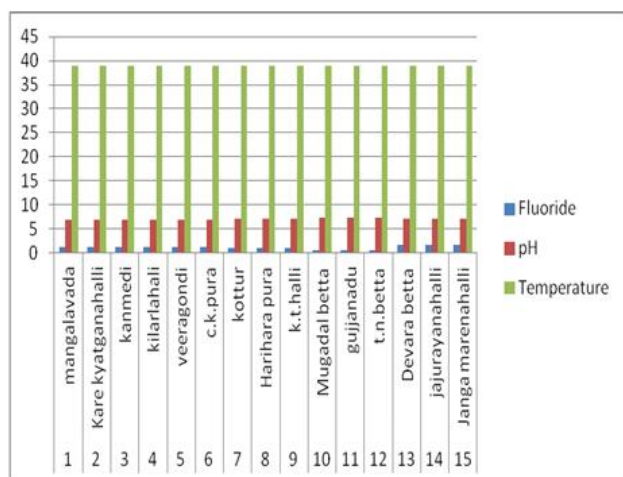
Sl no	Village	Fluoride	pH	Temperature
1	Mangalavada	1.2	6.98	39
2	Kare kyatganahalli	1.2	6.98	39
3	Kanmedi	1.2	6.98	39
4	Kilarlahali	1.2	6.98	39
5	Veeragondi	1.2	6.98	39
6	C.K..pura	1.2	6.98	39
7	Kottur	1.09	7.08	39

8	Harihara pura	1.09	7.08	39
9	K.T..halli	1.09	7.08	39
10	Mugadal betta	0.5	7.4	39
11	Gujjanadu	0.5	7.4	39
12	T.N..betta	0.5	7.4	39
13	Devara betta	1.6	7.2	39
14	Jajurayanahalli	1.6	7.2	39
15	Janga marenahalli	1.6	7.2	39

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**Figure – 4. Fluoride content, pH, Water temperature in April 2012**



The observed concentration of fluoride is above the permissible limits set by Indian standards, ICMR and WHO. Range of pH varies from different samples and not found any remarkable difference. The temperature varies from 34 to 39.00 C, during the month of march and April found to be highest 39.00C . This study reveals that water from selected areas are not suitable for human consumptions because of excessive limits of fluoride .

**Figure – 5. Fluoride content, pH, Water temperature in January to April 2012**

