

Figure 6: Percentage of Different Sources of Water

It was observed that, most of the finger food vendors were from low socio-economic status, they were unable to procure the minimum requirements for maintaining hygienic practices, such as standard food cart, with facilities of storage, cooking, hand and utensils washing facilities with detergents for the same and system for discarding the waste materials. And as majority of the vendors were unauthorized (52), a minimum of Rs 5,200/- will be lost for the Government every year from the two study areas.

### 3.3. Types of Food Stuffs Vended

From the survey it was observed that majority of the vendors in Vijayanagar (36%) and Vontikoppal (41%) areas vended Dosa, Idli, Poori, Roti, Chapati, Paratha, Rice, Curry, Gravy, etc. About 18% in Vijayanagar area and 28% in Vontikoppal area vended chat items such as Pani Puri, Gobi, Churmuri and so on. Again, 25% and 8% of mobile food vendors in Vijayanagar and Vontikoppal areas respectively vended Tea, Coffee and Milk along with Biscuits and Cake. Also about 11% in Vijayanagar and 13% in Vontikoppal areas vended non-vegetarian items such as Chicken, Mutton, Fish and Omelets. Rest of the mobile food vendors was found to vend cut fruits, sugar cane juice and ice creams.

### 3.4. Information Regarding the Utensils Used for the Sale of Food

The utensils used for sale of finger food were made of metal, plastic or paper. Majority of the Fast Food and Pani Puri vendors in Vijayanagar and Vontikoppal areas used metal or plastic plates for the sale of their food. Whereas, Gobi and Churmuri vendors used paper plates or polystyrene bowls; and majority of the Tea, Coffee and Milk sellers used paper or plastic cups for the sale. Thus all these materials are indirectly contributing to increase in the solid waste and they are not handled properly in both the study areas.

### 3.5. Information Regarding Food Safety Knowledge and FSSA

Regarding Food Safety Knowledge and Food Safety and Standard Act (FSSA), the vendors were asked few questions. Majority of the vendors had knowledge on food safety such as maintenance of hygienic conditions in and around their unit, giving filtered or bottled drinking water for customers, food adulteration and hand washing. But none of the vendors had knowledge on biological sources of contamination of food followed by knowledge on management of leftover food and also about FSSA in both the study areas; even though most of the vendors were educated up to primary and high school level.

### 3.6. Laboratory Analysis of Water Samples

Microbiologically contaminated food and drinking water are considered as important vehicles of foodborne disease transmission throughout the world; hence this study is mainly focused on the presence of microorganisms than other parameters. Since majority of the finger food vendors used bottled and tap water, same water samples were collected and used for the analysis work.

Water samples from certain finger food vendors of both the study areas were collected and tested for the presences of microorganisms and also for few other parameters. The water samples collected from the vendors were the representative samples of that particular study area. The findings of this analysis are presented in the Table 3 and comparisons of these analyses are shown in Fig. 7 and Fig. 8.

Table 3: Water Samples Analysis of Two Study Areas

Parameters	Vontikoppal area				Vijayanagar area			
	BW1	BW2	TW1	TW2	BW3	BW4	TW3	TW4
pH	7.9	6.3	7.8	7.7	7	7.2	7.4	7.5
Electrical Conductivity (µS)	62.8	42.3	824	365.5	74.9	58.9	399.8	472.6
TDS (mg/L)	40.8	27.5	535.6	237.6	48.7	38.3	259.9	307.2
Hardness (mg/L)	*BDL	BDL	308	308	BDL	BDL	332	330
Nitrate (mg/L)	BDL	BDL	0.1	0.1	BDL	BDL	0.6	0.4
Fluoride (mg/L)	BDL	BDL	0.3	0.3	BDL	BDL	0.5	0.5
Total Coliforms (per 100ml)	≥1100	≥1100	75	75	≥1100	≥1100	≥1100	≥1100
Fecal Coliforms (per 100ml)	≥1100	≥1100	240	240	≥1100	≥1100	≥1100	≥1100
Fecal Streptococci (per 100ml)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

\*BDL - Below Detection Level

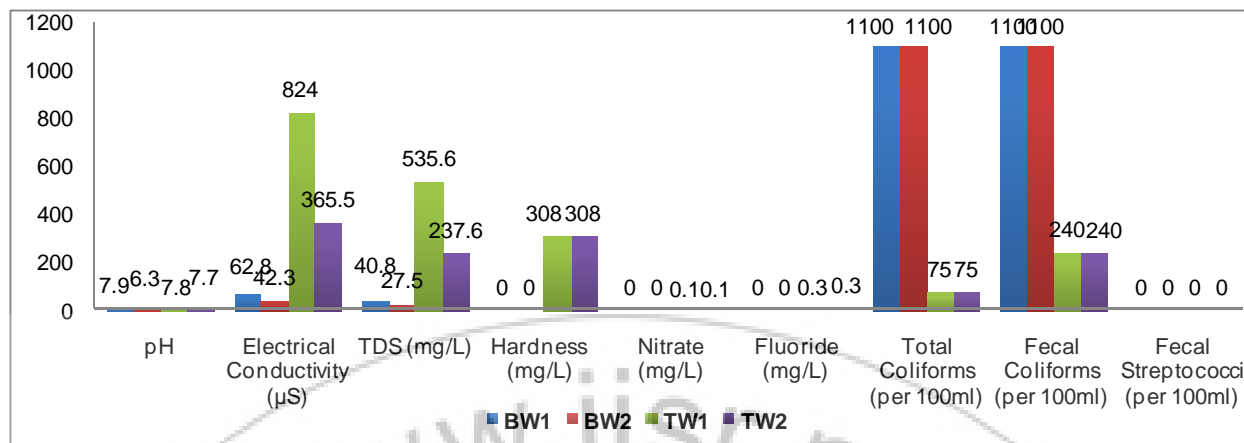


Figure 7: Water Samples Analysed at Vontikoppal Area

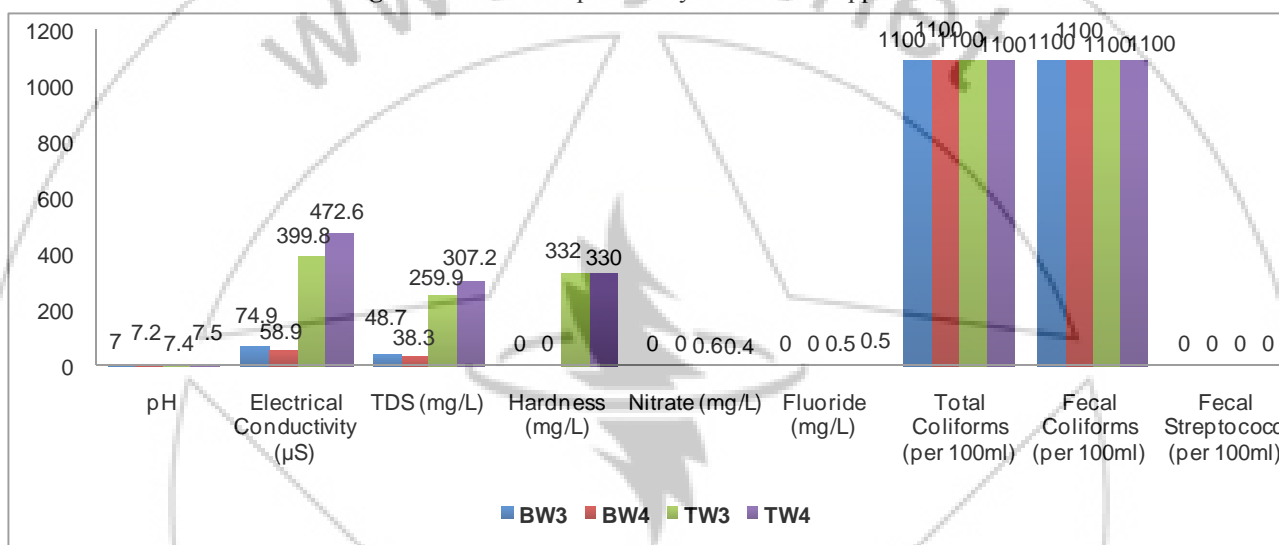


Figure 8: Water Samples Analysed at Vijayanagar II Stage Area

Analysis of water was done twice in order to compare the quality of water and samples were named as BW1, BW2, BW3, BW4, TW1, TW2, TW3 and TW4. For first, bottled water and tap water from particular food vendors were collected and analysed on the same day and again after one week, water samples from the same food vendors were collected and analysed on the same day for the same parameters. This procedure was followed for both the areas.

BW1 (Bottled water 1) and TW1 (tap water 1) were the water samples collected from Vontikoppal area and BW2 (bottled water 2) and TW2 (tap water 2) were the water samples collected from the same area after one week. Similarly, BW3 (bottled water 3) and TW3 (tap water 3) were the water samples collected from Vijayanagar area and BW4 (bottled water 4) and TW4 (tap water 4) were the water samples collected from the same area after one week.

The analysis clearly indicated that there was a presence of high level of total coliforms and fecal coliforms in samples BW1, BW2, BW3, BW4, TW3 and TW4. But comparatively less total coliforms and fecal coliforms were present in the TW1 and TW2. However, there were no signs of fecal streptococci in the water samples analysed. Other parameters such as pH, electrical conductivity, TDS, hardness, nitrate and fluoride were found to be within the limit.

Low demineralization of water which leads to re-growth of bacteria and level of hygiene control in the extraction and bottling process might have contributed to the presence of high level of total coliforms and fecal coliforms in bottled water; whereas, type of treatment system and present condition of water pipe lines might have contributed to high level of total and fecal coliforms in tap water.

#### 4. Conclusions and Recommendations

We may conclude that, the foods sold in the two study area by the finger food vendors are not safe, as they cause microbial hazard to the consumer because of the presence of microorganism in the drinking water provided by the vendors. Also, there are tendency of finger food becoming contaminated with high level of toxic chemicals including pesticides, heavy metals, unapproved food additives, etc. and also contaminants may enter the food under the street conditions where dust and vehicular traffic level is high. As most of the finger food vendors are mishandling the solid waste generated in both the study area, they attract flies, rodents and street dogs, which transmits the disease in the entire community.

Hence, the Government or Food Controlling Authority should make available of the basic infrastructures to the vendors which must include selection of proper sites away from drains, dustbins, etc., right method of supplying license to deserving food vendors, supply of good quality drinking water and regular monitoring of food in order to maintain the quality of vended food. Besides all these, proper training to finger food vendors must be given for improvement of knowledge on food safety and hygiene practices.

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## Author Profile

**Amrutha M. B.** received the B. E. degree in Environmental Engineering from Vidyavardhaka College of Engineering (VVCE) in 2012. She is now doing her final year M. Tech. in Health Science & Water Engineering in Sri Jayachamarajendra College of Engineering (SJCE).