Chapter-VI

Summary & Conclusions

Adulteration was defined as being the fraudulent addition to any substance of another, for the sake of increased sale or profit. The oxford dictionary defines it as making some substance impure by adding any impurities or removing a vital component. It means the reduction in quality of the food substances either by addition of foreign substances. A substance added to a food-item to reduce its quality in order to increase its quantity is called as an adulterant.

An article of food shall be deemed to be adulterated

- If the article sold by a vendor is not of the nature, substance or quality demanded by the purchaser or which it purports to be.

- If the article contains any substance affecting its quality or of it is so processed as to injuriously affect its nature, substance or quality.

- If any inferior or cheaper substance has been substituted wholly or partly for the article, or any constituent of the article has been wholly or partly abstracted from it, so as to affecting its quality or of it is so processed as to injuriously affect its nature, substance or quality.

- If the article had been prepared, packed or kept under insanitary conditions whereby it has become contaminated or injurious to health.

- If the article consists wholly or in part of any filthy, putrid, disgusting, rotten, decomposed or diseased animal or vegetable substance or being insect-infested, or is otherwise unfit for human consumption.

- If the article is obtained from a diseased animal.

- If the article contains any poisonous or other ingredient which is injuriously to health.

- If the container of the article is composed of any poisonous or deleterious substance which renders its contents injurious to health

- If the article contains any prohibited colouring matter or preservative, or any permitted colouring matter or preservative in excess of the prescribed limits.
If the quality or purity of the article falls below the prescribed standard, or its constituents are present in proportions other than those prescribed, whether or not rendering it injurious to health.

**Objective of the study**

- Analysis of different adulterants in various food in selected area of Varanasi
- Study of impact of adulterant in selected area among people of different age, sex, education, and background
- Study of awareness about adulterants among people of selected area.
- Study of legal awareness among people of different age sex and background.
- Study of impact of media awareness on people of selected area of Varanasi.
- Study of different law in India to protect consumer's right.

**Methodology**

Survey method was used in the present study with a structured type questionnaire (by the schedule cum interview method) as the data-collecting instrument. The questionnaire was divided into following sections: Personal information of respondent’s, Specific knowledge of respondents about materials of different commodities, Knowledge of consumer rights regarding to food and adulteration. The sampling included 160 female and 140 male respondents. Respondents were basically from household related to kitchen activity.

The respondents were consumer from various educational and economical status of the selected sub-areas of Varanasi. Respondent was responsible for their family, purchasing of food materials and there preparation at home. Basically three type of information was collected for the present study. Personal information, information based on specific knowledge, and about different commodities used by them frequently.

**Major factor involved in study**

Based on literature survey, a list of relevant variables was prepared. A questionnaire was prepared to capture the relevant variables, which was initially pre-tested at urban area of Varanasi. The data collection were aimed to get following information/response
a. Food safety practices,
b. Food safety behaviors,
c. Food safety knowledge,
d. Food handling practices.
e. Legal awareness,
f. Adulterant present in different food article.

**Instrumentation**

A statistical instrument is any process that aim at describing a phenomena by using any instrument or device, however the results may be used as a control tool. Examples of statistical instruments are questionnaire and surveys sampling.

**Data analysis**

Final data was collected from 300 respondents in Varanasi, Uttar Pradesh. The data were then tabulated processed and analyzed by percentage descriptive statistics, and chi square test, the findings were analyzed with XLSTAT 9.0 software (XLSTAT Version 2009 Addinsoft USA 1995-2009). Mean responses SD, and percentages of responses in each category were calculated and presented in a tabular form. Pearson chi square was used in the evaluation of the hypothesis.

**Conclusion**

- The urban people of Varanasi where people in majority are Hindu mostly have income range medium and lives in nuclear family and male and female have 40-50% education. The young people are there in majority and linked with mostly buying of food materials not directly linked with handling of food materials.
- Majority of the people like tasty food, healthy choice in food comes next, while choice of unadulterated food was low.
- Majority of the people like to purchase from stockiest. Percentage of buying choice from retailers comes next while others have their own farm house. Choice based on availability was low.
- Majority of the people like to purchase food item based on quality out & like to include all the factors for better food quality, while only of all feel that cleanliness is essential or for safety from adulterations.
Majority of the people found all type of adulterations in cereals. While some observed that there was inferior quality cereals mixed with good one or there was stone in cereals. Only 4-5% reported about worst polishing of cereals.

Majority of the people detected adulterations in cereals by seeing external feature of cereals, while rest detects cereal adulteration after cooking or during washing of cereals just before cooking. Other only 1% was unable to detect adulteration.

Majority of the people purchase pulses from shop while rest obtained from their own form or from based on suitability and Majority of the people found adulteration in pulses obtained from shop. While rest (4%) feels that there was no adulteration in pulses bought from shop. Statistically data were found to be moderately significant (<0.05).

Majority of the people uses Arahar dal among different pulses such as Urad dal, Mung, Masoor, and least of all were Chana/Matar dal (2%). Statistically data were found to be moderately significant (<0.05).

Majority of the people experienced of mixing of all the factor such as mixing of lathyrous, or yellow color in Arahar dal. Majority of the people can detect adulteration by just preliminary observations in Arahar dal while (6%) detected adulterants after washing and only 1-2% respondents were able to detect after cooking.

Majority of the people uses all type of oil for different purposes. Statistically data were found to be moderately significant (<0.05). Majority of the people observed adulteration in mustard oil while (27%) observed adulteration in all edible oil and other observed adulteration in ghee. Only 5% respondent’s adulteration in refined oil. Majority of the people observed illness due to adulteration in mustard oil and ghee. Only 3% respondent’s observed absence of any illness due to adulteration.

Majority of the people can detect adulterants in ghee by smelling while other observed after eating. Only 15-18% respondent’s observed adulteration after cooking. Statistically data were found to be highly significant (<0.05). Majority of the people observed that ghee is mostly mixed with Vegetable oil while other feels that animal fat are mixed. Only 4% respondent’s feel that ghee is adulterated with other adulterants.

Majority of the people feel there is adulterants in spices, while only 2% respondent’s feel that there are no adulterants in spices. Majority of the people observed there was horse dung as adulterants in coriander, while some detected
leaf powder, while 5-7% respondent observed soil as adulterants in coriander. Only 13% respondents observed that there was no adulterant in coriander.

- Majority of the people observed there was brick powder or sand in red chili powder while 8% respondent observed that there was no adulterant in red chili powder Statistically data were found to be highly significant (<0.05)

- Majority of the people observed that there are adulterants in turmeric powder and there was addition of yellow colour or mixing of ararote in turmeric powder while other (7%) observed that there was soil in the turmeric powder. Only 3% respondents observed that there was no adulterant in turmeric powder.

- Majority of the people are vegetarian while only 34% respondents were non vegetarian. Statistically data were found to be highly significant (<0.05).

- Majority of the people purchased raw egg from the market while 7% respondents were using egg as omelet. Statistically data were found to be highly significant (<0.05).

- Majority of the were agree that there is adulteration in RTE food statistically data were found to be highly significant (<0.05). Majority of the people have no idea about the type of adulteration in RTE food, while 43% respondents agreed that inferior quality of meat was there in RTE food. While rest of the respondents 5% respondents agrees that there was contaminated supply of RTE food.

- Majority of the people agree that there was adulteration in Fruits and Vegetables & there is every type of adulteration in Fruits and Vegetables. Statistically data were found to be highly significant (<0.05). Majority of the people feels that there is pesticide or oxytocin in Fruits and Vegetables. majority of the people detect it by seeing, while 7% respondents detect adulteration by smelling, while rest of respondents detect by washing. Statistically data were found to be highly significant (<0.05).

- Majority of the people observed adulteration of wheat flour in cane sugar, or soil in cane sugar, while rest of respondents (9%) detected addition of ararote in cane sugar in cane sugar.

- Majority of the people observed water or presence of some chemical in milk, while rest of respondents (4%) reported there may be addition of soy milk. Statistically data were found to be highly significant (<0.05). Majority of the people reported, there was ararote as adulterants in packed milk, fat removal in packed milk. Statistically data were found to be highly significant (<0.05).
• Majority of the people observed adulteration in Paneer, while 20% respondent’s observed no adulteration in Paneer.

• Majority of the people reported various type of illness such as stomach or skin and other physical problem, while other 16% were having no idea of adulteration.

• Majority of the people agreed that they can complain against adulteration. They are well known to consumer protection & consumer forum. Majority of the people responded that oneself can complain in consumer forum but accept that they never filed any complaint against the shopkeeper & never took action against shopkeeper. Statistically data were found to be highly significant (<0.05).

• Majority know about it from TV or from news paper while Rest 11% from people and other 4% from other sources. They used to see TV program “JAGO GRAHAK JAGO” Statistically data were found to be highly significant (<0.05).

• Majority of the people know about food standards while 17% respondent’s don’t know it Majority of the people know that ISI is main Indian food standard, while 18% about FAO & Rest 7% about AGMARK. Statistically data were found to be highly significant (<0.05).

Limitation of the study

• Researchers was unable to tell the quantities of adulterants present beyond prescribed limit or beyond toxicity level in different food products so that people can avoid such food products.