Elements Evaluation of Some Edible Vegetables and Fruits of Iran and India

1Ali Aberoumand and 2S.S. Deokule
1Department of Food Science, Behbahan University, behbahan, Iran
2Department of Botany, Pune University, Pune, India

Abstract: Fruits and leafy vegetables are believed to occupy a modest place as a source of trace elements due to their high water content. In addition to meeting nutrient intake levels, greater consumption of fruits and vegetables is associated with reduced risk of cardiovascular disease, stroke, and cancers of the mouth, pharynx, esophagus, lungs, stomach, and colon. Results showed Portulaca oleracea contains the macro-elements high value such as sodium(7.17 mg g⁻¹), potassium(14/71mg g⁻¹), calcium(18/71mg g⁻¹) and also it contain high ash value in comparison with others plants. Therefore, Portulaca oleracea has high nutritional value. Euphobia ochreata contains maximum micro-elements values such as iron (5.04mg g⁻¹) and zinc (3.83mg g⁻¹) in comparison with others plants, therefore it has high nutritional value from point view of trace(micro) elements. Momordica dioicia or Cordia myxa Roxb have the minimum nutritional values, because they have ash minimum values and contain sodium and calcium minimum values, but Cordia myxa has zinc minimum value. Alocacia indica, Asparagus officinalis, Chlorophytum comosum, Cordia Myxa, Euphobia Ochreata have medium nutritional values.

Key words: Euphobia, minerals, nutritional value and Portulaca

INTRODUCTION

Based on available scientific evidence, zinc may be efficacious in the treatment of (childhood) malnutrition, peptic ulcers, leg ulcers, infertility, Wilson's disease, herpes and taste or smell disorders (Al-Maroof, 2006; Gillman, 1995).

Leafy vegetables hold an important place in well-balanced diets. The idea itself of a well-balanced diet changed in recent years and more vegetable and fruits are advised (Ames and Gold, 1996; Bazzano, 2002; Gillman, 1995).

Iron is an essential mineral and an important component of proteins involved in oxygen transport and metabolism.

Plant foods sources of iron include dried fruit, peas, asparagus, leafy greens strawberries and nuts (Black, 2004).

On the other hand, with few exceptions, fruits and leafy vegetables are believed to occupy a modest place as a source of trace elements due to their high water content (Gibson, 1994).

Consumers are looking for variety in their diets and are aware of the health benefits of fresh fruits and vegetables. Of special interest are food sources rich in Calcium (Ca), Magnesium (Mg) and potassium (K). Most of these nutrient requirements can be met by increasing the consumption of fruits and vegetables to 5-13servings/day In addition to meeting nutrient intake levels, greater consumption of fruits and vegetables is associated with reduced risk of cardiovascular disease, stroke, and cancers of the mouth, pharynx, esophagus, lungs, stomach, and colon (Joshipura, 2001; Kratzer, 1986).

The present work aimed at determining the total of five nutritionally important minerals (calcium, iron, zinc, sodium and potassium) and ratio of K to Na and minerals contents in the plant foods widely consumed in Iran and India. Kratzer, (1986), Riboli (2003), Lucarini, (1996).

MATERIALS AND METHODS

Collection of Samples: Eight different types of fruits and vegetables (Alocacia indica Sch., Asparagus officinalis DC., Chlorophytum comosum Linn., Cordia Myxa Roxb., Euphobia Ochreata Lindl., Momordica dioica Roxb., Portulaca oleracea Linn. and Solanum indicum Linn.) were purchased from were collected from various localities of Maharashtra (India) and Iran. Five wild edible plants were collected from Iran viz Asparagus officinalis, Chlorophytum comosum, Codia myxa, Portulaca oleracea and Solanum indicum were collected from Iran in October 2006 and April 2007. Efforts made to collect these plants in flowering and fruiting conditions for the correct botanical identification.

Samples Preparation: Fresh fruits and vegetables were cleaned with water and external moisture wiped out with a dry cloth. The edible portion of the individual fruits was separated, dried in a hot air oven at 50°C for 1h. The dried samples were then powdered in blender for further study. Some of the plants dried under shade so as to prevent the decomposition of chemical-Compounds present in them.

Determination of Minerals: One grams of each of the sample were dry-ashed in a crucible in furnace at 550 °C for about seven hours. The ash was dissolved in 10 HCl acid in a conical flask. The solution was filtered into a.

Corresponding Author: Ali Aberoumand, Department of Food Science, Behbahan University, behbahan, Iran
100ml standard flask and made up to the mark with distilled water. The individual mineral element was estimated from this solution. Ca, Na and K using the Flame Photometer (Jenway, U.K.) And, Fe and Zn by Atomic Absorption Spectrophotometer.

**RESULTS AND DISCUSSION**

Sodium value in Portulaca oleracea Linn. was maximum and Sodium values in Momordica dioica Roxb., or Solanum indicum Linn. were minimum. Sodium value in Alocasia indica Sch. was medium (Table 1). Potassium value in Portulaca oleracea Linn. was maximum and Potassium value in Alocasia indica Sch. was minimum. Potassium value in Cordia Myxa Roxb. was medium (Table 1). Calcium value in Portulaca oleracea Linn. was maximum and Calcium values in Momordica dioica Roxb. or Cordia myxa Roxb. were minimum. Calcium value in Euplophia ochreata Lindl. was medium (Table 1).

Iron value in Euplophia ochreata Lindl. was maximum and Iron value in Momordica dioica Roxb was minimum. Iron value in Chlorophytum comosum Linn. was medium (Table 2).

Zinc value in Euplophia ochreata Lindl. was maximum and Zinc value in Cordia myxa Roxb. was minimum. Zinc value in Asparagus officinalis DC. was medium (Table 2).

It is observed that macro-elements values of Portulaca oleracea Linn. were high, especially it contains high ash value in comparison with others edible plants. Therefore, Portulaca oleracea Linn has high nutritional value from standpoint of macro-elements such as Sodium, Potassium and Calcium. Because Euplophia ochreata Lindl. contains micro-elements maximum amounts such as Iron and Zinc in comparison with others edible plants, It has high nutritional value from standpoint of above trace (micro) elements. Momordica dioica Roxb. or Cordia myxa Roxb have the minimum nutritional values, because they contain ash minimum values. Momordica dioica Roxb. contain sodium and calcium minimum values, but Cordia myxa Roxb. contain zinc minimum value. Alocasia indica Sch., Asparagus officinalis DC., Chlorophytum comosum Linn., Cordia Myxa Roxb., Euplophia Ochreata Lindl have medium nutritional values, from standpoint of one element.

It is observed that ratio of K to Na and minerals contents in Portulaca oleracea was better than others plants because this ratio will increase these minerals usable and absorbance in body.

**CONCLUSION**

We can conclude these wild edible plants are suitable for consumption and therefore, nutritional values of the plants are good, but it is necessary to study nutritional values in heat processing in next researches.

**ACKNOWLEDGMENT**

The authors are grateful to the Head Department of Botany University of Pune for providing necessary laboratory facilities and for encouragement. The first author is thankful to Head Department of Food Science Technology of Ramin Agricultural University of Iran.

**REFERENCES**


