

Research Paper :

Calcium content of common local fruits and vegetables in Haryana

SHWETA SAINI AND VINTI DAVAR

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See end of the article for authors' affiliations

Correspondence to:

SHWETA SAINI

Department of Home

Science, Kurukshetra

University,

KURUKSHETRA

(HARYANA) INDIA

shweta1712@gmail.com

ABSTRACT

There are a limited number of studies available on the nutritional value of calcium content of fruits and vegetables commonly available and consumed in Haryana. An investigation was thus made into the calcium content of sixteen such fruits and vegetables. The samples were first digested to remove organic constituents, the calcium was then analyzed using Atomic Absorption Spectrophotometry. The results indicated that amaranth (chola), lotus stem, raisins, spinach and curry leaves contained high calcium content. The vegetables were by far richer in calcium content when compared to fruits. Increased consumption of local fruits and vegetables with high calcium would be useful in improving the daily calcium intake.

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Key words : Calcium content, Fruits, Vegetables

Calcium is one of the most abundant minerals in the body, available through diet. Ninety nine per cent of body's calcium supply is stored in the bones and teeth where it supports their structure (Weaver and Heaney, 2006). The remaining one per cent of calcium is the most important as it supports the various biological processes (Anonymous, 1997), like muscle contraction blood vessel expansion and contraction, secretion of hormone and enzyme and transmitting impulses throughout the nervous system (Whitney, 1996).

Inadequate intake of dietary calcium from food and supplements for short terms results in hypocalcaemia. Symptoms of hypocalcaemia include numbness and tingling in the fingers muscle cramps, convulsions, lethargy, poor appetite and abnormal heart rhythm (Weaver and Heaney, 2006). But over a long term dietary insufficiency of calcium can leads to porous and fragile bones as well as tooth decay. Rickets, osteomalacia (Albright and Reifenstein, 1948) and osteoporosis (Cooper *et al.*, 1992) are the serious complication of calcium deficiency.

Osteoporosis is considered as a serious public health concern, which affects more than two hundred million people worldwide (Nordin, 1960). Calcium is present in both animal and plant foods. Milk is the best but expensive while green leafy vegetables are the cheapest source of calcium (Swaminathan, 2000) For better food selection and estimation of calcium intake, the present study has been undertaken to determine calcium content of common

local fruits and vegetables in Haryana.

EXPERIMENTAL PROCEDURE

A total of sixteen fruits and vegetables were analyzed including five fruits and eleven vegetables for their calcium content.

For this purpose, food samples were purchased from the retail market of district Kurukshetra, Ambala, Sonapat, Rohtak and Bhiwani. Fruits and vegetables samples were cleaned, washed, sorted out and only edible portion were homogenized for determination of calcium. Samples were analyzed in triplicate in di-acid mixture (4 parts HNO₃ and 1 part HClO₄) according to the procedure of Johnson and Ulrich (1959). For digestion, one gram sample of each food was taken with 20ml of diacid mixture in a 100ml conical flask and was covered by a watch glass to prevent contamination and kept overnight. The samples were digested at low temperature on hot plate. Copious red fumes, produced as reaction initiated and after 40-50 minutes, the fumes of nitric acid were over. The digestion was continued till the liquid finally became colorless. A volume of 50 ml was made on cooling of the digested sample with doubled distilled water. Calcium was analyzed using atomic absorption spectrophotometer (Chemito AA203) and data were converted to mg/100g of food.

The calcium content of the studied fruits and vegetables was compared with the values reported by Gopalan *et al.* (2002), Cunningham *et al.* (2001), Siong