

Appendix

Appendix I

Nutritive value of preserved fruits and vegetables

Dried Fruits

When fruits are dried, some nutrients are lost due to exposure to heat and light. The concentration of other nutrients increases due to loss of moisture during the drying process. Loss of vitamin C occurs due to exposure to heat and light while vitamin A loss occurs due to exposure to light. In most fruits, 14-20% of Vitamin C is retained except in mangoes where only traces are retained. About 1-5% of Vitamin A is retained in the process of drying. The other vitamins i.e. Niacin, Riboflavin, and Thiamine increase by about 10 times due to loss of moisture. It is important to use natural preservatives such as lemon juice because treatment with chemicals such as sulphur dioxide destroys all the thiamine. Ascorbic acid and vitamin A losses can further occur if products are stored in the presence of oxygen and light respectively. Therefore the dried products should be stored in airtight containers in dark environment such as black containers or polythene bags.

Minerals are not affected by heat and light and hence they are not lost when drying fruits. Iron and Calcium, for example, are retained and increase by about 10 times. (See Appendix I)

Dried fruits in the diet

Although most of vitamins A and C are lost during drying of fruits, the other vitamins and minerals are required during the normal human body functions shown below:

- Thiamine, Riboflavin and Niacin are needed for energy release.
- Calcium for bone and teeth formation especially for babies when weaning begins. This is especially so because breast milk which is usually the main source of calcium reduces and babies have to be introduced to other foods. It is also during this growing stage that most bone formation takes place.
- Iron for formation of haemoglobin in the blood and is important for expectant and breastfeeding mothers as well as the growing babies. Very little iron is contained in breast milk hence the need to supplement the diet with foods rich in iron during weaning. Vitamin A is important for good vision and skin protection.
- Vitamin C for wound healing and blood formation.

Remark

When preparing a diet using dry fruits, other foods rich in vitamins A and C should be included, for example liver, coloured vegetables (e.g. tomatoes and carrots) and dairy produce. Dark green vegetables are also high in vitamin A. Vitamin C can also be obtained from citrus fruits and dark green vegetables. Dried fruits can thus be used effectively in formulation of baby foods, when properly balanced with sources of other nutrients, for example, a baby aged 6-12 months requires the following quantities of vitamins and minerals per day:

Calcium	40mg
Iron	8mg
Vitamin A	1500 I. U.
Thiamine	0.4mg
Riboflavin	0.8mg
Niacin	5mg
Ascorbic Acid	15mg

Apart from Vitamins A and C, we can obtain enough quantities of all the nutrients from dried fruits.

Appendix 2

Vitamin and mineral composition of selected dried fruits (per 100g edible portion)

Food	Ascorbic Acid (Vit C) mg	Vitamin A (carotene) I.U.	Thiamine I mg	Riboflavin mg	Niacin mg	Iron mg	Calcium mg
Mango: fresh	30	600	0.03	0.04	0.3	0.5	10
dried	Trace	26.5	0.47	0.53	3.62	7.3	60
Papaya: fresh	50	1000	0.03	0.03	0.2	0.5	20
dried	9.6	12.7	0.21	0.16	2.53	7.8	116
Banana: fresh	10	100	0.05	0.05	0.7	0.5	7
dried	1.4	1.5	0.43	0.29	3.0	1.6	39
Guava: fresh	200	200	0.05	0.04	1	1	15
Citrus	45	30	0.08	0.03	0.2	0.5	30

Sources:

- Human nutrition in tropical Africa by Michael C. Lytham
- Report on fruit and vegetable preservation in rural areas by Mirowslaw Sculczynski