Nutrients Availability of Rawash from Balochistan

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Introduction

Rawash belongs to the family polygonaceae genus Reheum. This family consists of about 40 genra and 800 species which commonly found in central Asia, Turkey, India, Pakistan and Kashmir [1]. It has beautiful purple color, special sour taste and is eaten during hot season. The plants are stout herbs. The leaves are 20-50 cm tall and 10-40 cm broad. The it may occur in different shapes, from small roughly cylindrical pieces about 5 cm in length and 2.5 to 3 cm thick, light in weight. It's dark purple in color and taste is bitter and sour. The flowers are small, regular, pale yellow and dark purple in color [2]. Rawash is used in the treatment of diarrhea and purgation. It contains number of anthraqunone derivatives [3]. It has been proved that Rawash improves liver functions and it also increases the low B.P. due to its sour, bitter and salty constituents and is also considered as diuretic. It is to be used in sore eyes, piles, chronic bronchitis and common cold [1]. The objectives of this study was to analyzed the Rawash chemically, to estimate micro and macro nutrients such as proteins, carbohydrates, fats and vitamins quantitatively and qualitatively. We carried out these studies using various techniques like spectrophotometer and atomic absorption method were used for the estimation of minerals [4].

Results and Discussion

The present work evaluated biological and nutritional values of Rawash in terms of macro and micro nutrients such as protein, carbohydrate, fat, vitamin C and minerals. We found out that many people of Balochistan consume it due to its good taste. For the estimation of protein, carbohydrate, fat and vitamin C, spectrophotometric technique were used. The various mineral content were analyzed by atomic absorption method. The nutrients of Rawash and its comparison with other food materials such as maize, rice, tomato, potato and banana, are shown in Table-1. This table shows that Rawash is rich in protein which is 7.1 mg % Protein is an important body building constituent. It is used to protected the body against infectious diseases and it helps the cells to work by the syntheses of enzymes [5]. Rawash contains a large amount of glucose which is about 10.9mg % which the instant source of energy. The amount of fat is about 0.7 mg% which is also high as compared to other food materials except maize. Fat provides more calories as compared to other nutrients and it also helps the absorption of fat soluble vitamin [6]. The water content is about 9.15 mg% and vitamin C is about 2.5 mg%. This vitamin is involved in the oxidation of toxic compound of the body, helps in absorption of iron and syntheses of binding protein [7].

Table-1: Comparative nutritional values of rawash with other food material

Nutrient	Water (g) %	Protein (mg) %	Fat (mg) %	Glucose (mg) %	Iron (mg) %	Vit C (mg) %
Maize fresh	58	5.0	2.1	2.0	3.6	–
Rice polished	12	7.0	0.5	–	1.0	–
Potato	78	1.7	0.1	1.0	1.1	21
Tomato	94	1.0	0.2	3.0	0.6	26
Banana	77	1.5	0.1	1.7	1.4	9
Rawash	9.15	7.1	0.7	10.9	3.1	2.5

The Table-2 shows a good amount of minerals such as calcium (7.9 mg%), sodium (0.35 mg%), potassium (2.13 mg%), Magnesium (2.21 mg%), zinc (0.24 mg%), Manganese (0.11 mg%), Copper (0.08 mg%) and iron (3.0 mg%). In the light of above observation it is concluded that Rawash is a very good food which supplies good nutrients.

Table-2: Analysis of trace elements

Trace elements	W/W Percentage	Mean Std. Deviation
	W/W	
Ca	7.9	+0.65
Na	0.35	+0.21
K	2.13	+0.33
Mg	2.21	+0.51
Fe	3.0	+0.26
Zn	0.24	+0.01
Mn	0.11	+0.012
Cu	0.08	+0.02

Experimental

Dried sample was crushed and homogenized by blander to a powder form 10g of powder was dissolved in 100 ml of distilled water, 10 g in 100 ml ethanol and 10 g in 100 ml chloroform separately. After centrifugation and filtration these samples were used to analyze for protein, carbohydrate and vitamin C and fat contents quantitatively and qualitatively.

Determination of protein

The protein Stds. [10 mg (0.01 g) of albumin in 1 ml of H_2O]. The volumes were made upto 2 ml with water 3.0 ml biuret reagent was mixed well and incubated at 37°C absorbance was read at 550 nm.

Determination of glucose

2.0 ml o-toluidine reagent was added in each tube containing different volume of glucose. The tubes were kept in boiling water for 15 mn and the absorbance was noted at 650 nm.

Determination of lipids

The lipid Stds. solution (1.0g olive oil in 100% ethanol) added 1 ml of sulphuric acid. Kept in boiling water bath for 10 min. 5 ml of Vanillin Reagent was added and incubated at 37°C for 10 min. The absorbance was noted at 530 nm.

Determination of vitamin C

The vitamin C stds. solution were taken and added 6 ml of TCA 6%. Centrifuged for 5 min and added 300 mg of activated charcoal to supernatant. It was shaked well and filtered. 2 ml of dinitro phenyl hydrazine reagent was mixed with filtrate incubated at 37°C for two hours then sulphuric acid was added. The absorbance was noted at 520 nm [8].

Analysis of minerals by atomic absorption method

The working standard of 100 μg/ml was prepared by diluting 10 ml of 100 μg/ml stock solution upto 10 ml. The 0.005, 0.05, 0.1 and 0.5 mls of working standard solution was taken 100 ml volumetric flacks. Then 50 ml of 8 M HCl was added in each flack, made upto mark. The sample solution was aspirated. The concentration of unknown sample was determined for calibration curve [4].

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