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QUANTITATIVE DETERMINATION OF VITAMIN C AND CHEMICAL PARAMETERS OF MOSAMBI AND CHAKOTRA APPLE

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Keywords:

Fruit juices, ascorbic acid, citric acid, juice yield, specific gravity

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ABSTRACT

The vitamin C levels in ripe, unripe mosambi and chakotra apple are determined. The percentage juice yield, specific gravity, density, pH and total titratable acidity are also calculated. Nearer pH values are observed for all the four juices. High ascorbic acid content and also total titratable acidity is observed in unripe chakotra apple. Knowing of ascorbic acid levels and other chemical parameters is useful to preserve the fruit juices because these are the perishable food items.

INTRODUCTION

Ascorbic acid is responsible for synthesis of neurotransmitters, steroid hormones and enhances iron bioavailability(1).To prevent tissue damage it is very important because it has antioxidant properties. It is recommended that a minimum daily intake of 400g of fruits and vegetables is necessary for proper maintenance of health standards by WHO(2).It protects against infections by activating immune system. It is essential to determine the physico chemical parameters of various fresh fruit juices in order to preserve them.

MATERIALS AND METHODS (3-10)

Sodium hydroxide, iodine, sulfuric acid, phenolphthalein and oxalic acid are used for this study and all these reagents are of analytical grade.

Juice yield:

The percentage of juice yield is calculated by using Tressler and Joslyn mathematical expression.

$J_y=100\ Q_p /Q_P+Q_R$

SPECIFIC GRAVITY AND DENSITY

By using specific gravity bottle, specific gravity and density of juices are determined by using specific gravity bottle. These parameters are calculated by using the following formulae.

$SG=W_J / W_W$

Density=1000SG

pH determination:

By using pH meter, pH values are recorded.

Ascorbic acid content:

By using Hartely's method the ascorbic acid content of juices are calculated.

Total titratable acidity :

By using Ishiwu and Oluka mathematical expression it is calculated after performing the titration with 0.1N standardized sodium hydroxide and phenolphthalein as an indicator.

RESULTS

The physico chemical parameters of mosambi and chakotra apple are listed in the table.

Fruits	Juice Yield (Jy)	Specific Gravity(SG)	Density	pH	Ascorbic acid	Acidity
Mosambi(Unripe)	68.3980	1.026410	11026.410	3.56	0.5759	0.357
Mosambi(ripe)	69.6486	1.02640	1026.40	3.85	0.073538	0.336
Chakotra(dabbakaya(unripe)	64.4659	1.022286	1022.288	3.90	0.123154	0.0707
Chakotra(dabbakaya)(ripe)	61.6782	1.020965	1020.965	3.95	0.1329	0.0805

DISCUSSION

Mosambi juice is used as a refreshing juice. It protects against arthritis and boosts immunity. Chakotra apple is also an exotic citrus fruit. But it is not mostly consumed by the people. So it is thought worthwhile to determine chemical parameters in order to use as a raw material for fruit juice industries. The ascorbic acid content of unripe chakhotra apple is more than ripe one. Almost nearer ascorbic acid and citric acid content is observed in case of mosambi. Nearer pH values are observed for all the juices.

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