



STUDIES ON SOME PHYSICO-CHEMICAL CHARACTERISTICS OF COCONUT WATER NEAR SUGAR AND CHEMICAL FACTORY, KOPERGAON (M. S.)

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ABSTRACT

The analysis was carried out for the parameters pH, acidity, potassium, sodium, calcium, magnesium, phosphorous, iron, copper and riboflavin in tender coconut water. In present work, pollution due to industrial waste have been studied by taking tender coconut water samples at eight different places. The natural quality of ground water and soil tends to be degraded by human activities and, which is ultimately found in plants. The present study is mainly concentrated in the contents of tender coconut water samples near sugar and chemical factory.

Key words: Coconut water, Potassium, Sodium, Phosphorous, Iron, Copper.

INTRODUCTION

Coconut water possesses medicinal properties^{1,2}. It is also used for drinking purposes. Water is polluted due to various phenomenon³⁻⁵. Soil is also polluted due to such phenomenon. Activity of metal ions on soil was studied by Lindsay and others⁶. The chemical activity usually depend on soil pH, carbon dioxide concentration and redox potential of the soil^{7,8}. Therefore, the coconut water in such polluted water and soil also get polluted.

In most of the large industry, proper effluent management system is available but in the case of small industries, no such effluent treatment or waste water management system is available. Hence, periodic monitoring of the ecosystem is highly warranted and this work is a step towards determining, how far the plant system is affected from effluents⁹?

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EXPERIMENTAL

The tender coconut water samples collected from different places. The samples were collected during the month of January to April 2007. Samples for analysis was collected in sterilized bottles. The determination of pH was carried out by pH metry. The determination of phosphorous, copper and iron was carried out spectrophotometrically.¹⁰ The determination of acidity and magnesium was carried out using titrimetrically¹⁰. The determination of potassium, sodium and calcium was carried out flame photometrically¹¹. The determination of riboflavin was carried out fluorimetrically¹¹.

RESULTS AND DISCUSSION

The results of present investigation suggested that the coconut water collected from some places have higher values of acidity, sodium, calcium, magnesium, iron and copper^{12,13}. Excess amounts of metals may have some indirect influence such as animals. Thus, these metals may indirectly enter into the food chain. Therefore, action is warranted to reduce the soil and water pollution in this area.

Table 1.

Parameter	Sample							
	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
pH	4.4	4.5	4.5	4.6	4.4	4.7	4.6	4.5
Acidity (mg %)	119.7	121.2	122.0	123.2	119.7	124.2	123.1	122.1
Potassium (mg %)	267.7	271.2	272.3	275.4	270.3	273.4	274.6	276.4
Sodium (mg %)	42.4	43.2	44.1	46.2	45.7	49.4	47.2	45.2
Calcium (mg %)	46.2	47.3	49.2	47.6	43.4	49.8	48.7	49.4
Magnesium (mg %)	10.2	11.2	11.4	10.1	12.0	13.4	13.2	12.2
Phosphorous (mg %)	9.1	9.2	9.0	9.3	9.1	9.2	9.3	9.4
Iron (mg %)	110.3	112.4	110.3	112.6	113.6	109.7	112.6	114.2
Copper (mg %)	27.4	28.6	29.6	27.6	28.5	29.9	28.9	29.2
Riboflavin (mg %)	0.02	0.03	0.02	0.04	0.02	0.03	0.02	0.02

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