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CHARACTERIZATION OF PINEAPPLE RESIDUES FOR INTEGRAL USE

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Introduction. The pineapple (*Ananas comosus*) is commonly used for the production of juice, nectar and tinned fruit. In most of the cases, the sub products of the transformation process of the raw materials that are released into the environment without treatment, causing soil contamination[1,2]. The residues of the pineapple have an acid pH between 3-4, this acidifies in a significant way the soil and attracts insects, which turns pineapple waste as not suitable for its decomposition in an organic way[2]. On the other hand these residues contain valuable components such as: sucrose, glucose, fructose, xilose and other one nutrientes[3,4,5]. The production of bioethanol is another option to use this waste.

The objective of this work is to characterize the residues of pineapple to determine its potential utilization.

Methodology. The characterization is based on the determination of percentages of weight that occupies every element of the fruit as pineapple peel, heart and flesh. The following measurements were performed: pH (potentiometer), reducing sugars by the method of dinitrosalicylic acid, total sugar by phenol- sulfuric method, pectin (NMX-F-347-S-1980), humidity by dry weight. Ashes, °Brix and titratable acidity (citric acid) were determined for pineapple flesh.

Results. The pineapple flesh is used for elaborating pineapple syrup, Table 1 shows the bromatology analysis. The residues represent 68% of all the fruit and consist of the heart, peel and stem (Table 2).

Table 1 Characterization of pineapple flesh

Parameter	Value
pH	3.67±0.14
Humidity (%)	85.245±1.455
Ashes (%)	0.337±0.032
°Brix	13.5±0.5
Titratable acidity (mg citric acid)	0.82

Flesh, heart and peel are present in the same amount and the total and reducing sugar were similar also, heart contains a lesser amount of total solids. The pectin content was very low in all the fractions.

Table 2 Characterization of fraction pineapple (*Ananas comosus*)

Fraction	% of total pineapple	pH	Humidity (%)	Total sugars (%)	Reducing sugars (%)
Flesh	31.94	3.61	85.2	79.32	13.98
Heart	30.55	3.37	95.09	79.56	12.73
Peel	30.55	3.95	87.50	80.21	13.90
Stem (crown)	6.94	3.90			

Conclusions. Pineapple residues represent the largest percentage of the fruit, they can be used to obtain other products with an added value, for example sucrose, glucose, xylose, fructose, bromelain. The percentage of pectin obtained indicates that the extraction of pectin of the residues of the pineapple does not turn out to be efficient, since the performance is very low. However the sugar content could allow the production of bioethanol

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