

## PRESERVATION OF *Aloe vera* LEAF JUICE BY DIFFERENT METHODS

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### ABSTRACT

*Aloe vera* gel extractor was developed at Department of Agricultural Process Engineering, Dr. PDKV, Akola. It consisted of shaft cum roller, bearing and housing frame and discharge chute and a transmission unit. The cleaned leaf was fed between the roller and rotation of the handle causes the gradual expression of the gel. Extraction capacity of the machine was found to be 3.923 kg h<sup>-1</sup> of leaves giving 91.20 per cent extractability and recovery of gel was 52 per cent. Extracted gel was preserved by three different methods viz, freezing, chemical addition and dehydration. Frozen mass of *aloe vera* can be preserved longer when stored at temperature -5<sup>o</sup> to 8<sup>o</sup>C. Propyl paraben methyl paraben, citric acid mixed each concentration with 0.25, 0.5, 1.0 2.0 per cent can preserve gel up to 6, 3 and 4 days respectively at room temperature. Whereas storage period at low temperature (5 to 10<sup>o</sup>C) increased up to 22, 6 and 30 days respectively. *Aloe vera* gel was dehydrate under drying parameter of 3.8<sup>o</sup>C and 19 per cent Rh with loading density 0.8 kg/ m<sup>2</sup> it took 96 min for drying. Citric acid at 0.5 per cent having storage period upto 4 days is more suitable as less number of colonies were found in microbial counting.

**Key words :** *Aloe vera* Leaf, *Aloe vera* gel extractor, Mucilageous juice, Preservatives.

*Aloe vera* is one the medicinal plant which serves in the field of pharmaceuticals and cosmetics. Probably the only plant in the plant kingdom which is promisingly surviving the important aspect of human health. Even though, *Aloe vera* is a wild plant, its application in the domestic society has remained worthy to mention<sup>1</sup>. In the field of medicine, it has a large spectrum of application such as drug *aloe* is obtained from yellow bitter juice of *Aloe vera*. It heals burnt, superficial wounds. *Aloe vera* gel products may also be used internally and has beneficial effect on peptic ulcers. Similarly, in cosmetics it has vast potential arise<sup>2</sup>.

Shifting pattern of agriculture and cultivation has inspired the few farmers to go for *Aloe vera* cultivation. But the end effect is not encouraging due to exploitation in the market the cost of transportation is not being met out through sale of *Aloe vera* leaves. This gloomy present situation has a challenge to establish a technological mile stone, so that a farmer can go for primary processing of *Aloe vera* and sale the product directly to the cosmetic or pharmaceutical industries. This will not only help the industry but city garbage will also be reduced which is after the disposal of factory. Thus the pollution will be eliminated and environment will be protected. The farmer can recycle the plant waste con in vermi compost that will be useful for his land. To fulfill this dream of integral

business, a farmer has to go for production processing and marketing. Thus, the research project was undertaken in the year 2004 at Deptt of Agril. Process. Engg. with the objectives of development of a simple *Aloe vera* leaf juice extractor and the preservations of gel by freezing or use of chemical additives and dehydration of gel to form a powder.

### MATERIALS AND METHODS

The valuable of *Aloe vera* leaf is the mucilageous juice or extract i.e. gel. The extraction of gel is hard and tedious, moreover, recovery of gel is also lower. Hence, manually operated extractor was developed for extracting *Aloe vera* gel. The extractor consisted of shaft cum roller, bearing and housing, frame and discharge chute and a transmission unit. Overall dimensions of the extractor are given in Table 1.

Table 1 : Dimension of *Aloe vera* leaf extractor.

	Particular	Dimension, mm
i	Shaft length	220
ii	Shaft die	13
iii	Upper Roller diameter	54
iv	Lower Roller diameter	60
v	PVC coating on upper roller	2
vi	PVC coating on lower roller	5
vii	Roller length	100