

**COMPARATIVE AND FERMENTATION STANDARDISATION
STUDIES ON DASAMULARISHTA**

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ABSTRACT: Asavas and arishtas are produced by fermentation in an earthen pot according to textual procedure. The size and shape of the pot and the quantity of the drug that can be taken in a pot for fermentation is not mentioned in the literature. The present Study was taken up to determine the quantity of drug that can be fermented in an earthen Pot to obtain best results.

Dasamularishta was fermented in different volumes in earthen pots of identical size, shape and capacity, as well as in stainless steel vessel and porcelain jar.

The drug filled up to 3/4th of the volume of the earthen pot had shown better results than the earthen pots containing various volumes of drug. The stainless steel container and porcelain jar also showed comparable results to the earthen pot fermented drug. Thin layer chromatography of different preparation showed five spots.

Introduction

Asavas and arishtas are a group of fermented in different volumes Ayurvedic drugs. As per textual procedure (shastras) solution to be fermented is taken in an earthen pot coated

With a layer of ghee and smoked with pippali inside. The pot is covered with lid, sealed with mud and is buried in ground or heap of paddy for one month.

No mention has been made in literature about the size and shape of earthen pots or the quantity of drug to be taken in them for fermentation. The yogaratnavali advises to fill up

3/4th volume of the earthen pot but does not say about the size and shape of the vessel (Anonymous, 1968). There is also mention in the literature to employ wooden vats, porcelain jars or employ wooden vats, porcelain jars or metals vessels in place of earthen pots for large scale preparations (Anonymous 1968, 1978).

Therefore a study was undertaken with Dsamularishta to find the effect on fermentation

With different volumes of solution in earthen pots of equal size and shape.

The Dsamularishta was also taken for fermentation in stainless steel container and porcelain jar. The results observed in different type of vessels are compared with the standard type container i.e. earthen pot.

Materials and Methods

Dasamularishta was prepared as described earlier (Alam et al 1979).

Earthen pots – Four earthen of identical shape, size and volume were employed. The capacity of each pot was 7.5 litre. All the pots were coated with a layer of ghee and smoked with pippali. The quantity of dssamularishta filled in each for fermentation was adjusted as follows:

1. 3.7 litre in pot No. 1
2. 5.0 litre in pot No. 2
3. 5.5 litre in pot No. 3
4. 7.0 litre in pot No. 4

The pots were closed with lid, covered with cloth and mud was smeared around it. The pots were buried in the ground upto neck for one month.

Stainless steel and porcelain containers-

The steel vessel and porcelain jar, each of one litre capacity, were taken. The steel vessel was provided with a screw cap whereas there was only a loose fitting lid for porcelain jar. In each container 750ml of dasamularishta was taken for fermentation.

The vessels were closed with lid, covered with cloth and were kept at room temperature for one month.

Analytical methods- pH was determined on Elico digital pH meter. specific gravity, solid content, sugar and alcohol were estimated as reported earlier (Alam et al 1979).

Chromatography –Thin –layer silica gel chromatography was carried out in the solvent

Butanol: acetic acid: water: :63: 17: 10. The chromatograms were detected by spraying with sulphuric acid-water (1:1). The sulphuric acid sprayed plates were kept in oven at 110⁰c for 10 minutes.

Result

Dasamularishta before fermentation was having pH 5.01, specific gravity 1.144, solid content 33.9% (W\W) and total sugar 34.67% (W/W).

The pH and solid content of fermented drug were either identical or of the same order in all the pots except in pot No.3. The quantity of drugs in this pot was 3/4th volume of the pot. The pH was slightly high and specific gravity and solid contents were lower than in other pots (Table 1).

TABLE-I

Analytical values of different volume of Dasamularishta fermented in 7.5 litre earthen pot

Parameter	Pot number			
	1	2	3	4
Vol. of dasamularishta (litre)	3.7	5.0	5.5	7.0
pH	3.77	3.80	4.35	3.80
Sp.gravity	1.102	1.106	1.087	1.097
Solid content % (W/W)	27.47	27.57	24.34	26.43
Total sugar % (W/W)	21.66	22.83	20.61	21.66
Alcohol % (V/V)	3.72	5.50	7.44	5.64

The total sugar was 21.66% (W/W) in the pots No. 1 and 7.0 litres respectively. In the pots No.2 and No.3 sugar content were 22.83% and 20.61% (W/W) respectively. The alcohol production was comparable in the pots No. 2 and No.4. It was maximum in pot No.3.

The steel vessel and porcelain jar fermented drug showed identical pH and was almost same as that of earthen pot. The solid content and specific gravity of either

container was comparable to earthen pot. The alcohol production in steel vessel was slightly more than the porcelain jar (Table 11).

There was no difference chromatographically in all these preparations irrespective of volume of the drug or nature of vessel. Arishta in each container showed

TABLE II

Analytical values of Dasamularishtam fermented in steel vessel and porcelain jar

Parameter	Steel vessel	Porcelain jar
pH	3.78	3.77
Sp gravity	1.098	1.10
Solid content % (W/W)	26.36	26.48
Total sugar % (W/W)	18.80	19.65
Alcohol % (V/V)	7.44	7.16

five sulphuric acid positive spots of equal Rf value.

Discussion

The analytical values of sugar, solid content specific gravity were comparable in the pots containing the drug filled upto 1/2, 2/3 and almost full capacity of the container. The pot containing drug upto 3/4th of its capacity showed pH higher than other pots and solid content and sugar lower than in other pots. The alcohol production increased with the increase in quantity of drug upto 3/4th of the volume of the pot. Further increase in the quantity of drug decreased the production of alcohol (Fig. 1).

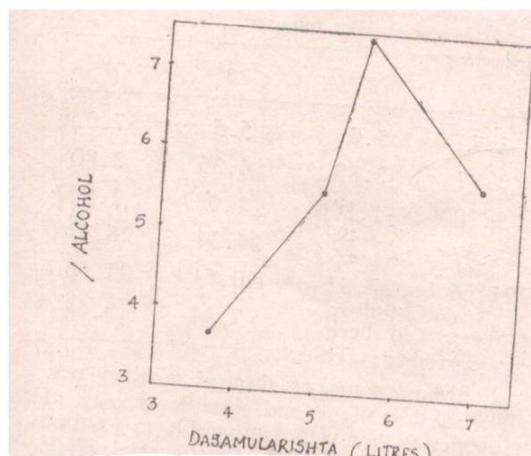


Fig 1. Generation of alcohol with relation to quantity of Dasamularishta in the earthen pot

The steel vessel or porcelain jar did not cause any appreciable change in pH, specific gravity and solid content. The alcohol production was comparable to the earthen pot containing drug upto 3/4th of its volume. There was no difference chromatographically in the drugs produced either in different volumes in earthen pots or in different types of container. The values reported here are comparable to our earlier results (Alam et al 1997).

Conclusion

The filling up of a pot to its 3/4th capacity has been found to be suitable for fermenting dasamularishta. Analytical values of the steel vessel and porcelain jar fermented drug were also comparable to earthen pot fermented drug which filled the pot upto 3/4th its volume. Incidentally they were also filled with the fermenting solution only to its 3/4th capacity.

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