

CHAPTER - V
CONCLUSIONS

: CONSLUSION :

In the present investigation we have tried to understand the basics of jaggery manufacturing process and found that, the quality and yield of jaggery can be improved on the application of scientific methodology. In spite of rapid technological developments, people are following traditional and crude methods for this purpose. The most important stage in the jaggery manufacturing process, the striking point stage is still judged manually and therefore it suffers from many drawbacks.

From comparative studies on 23 jaggery manufacturing units in Kolhapur and Satara districts, we have deduced following results

i) Table 3.4.1 Presents unitwise striking stage temperatures for Kakavi stage and final striking stage and from this table it has been noticed that, for Kolhapur region striking point temperature for Kakavi stage is 105°C and for final striking stage (Golli stage) it is 118°C .

ii) From Table 3.4.2, it has been noted that,

a) Intial Brix of Cane juice varies from 12% to 18% but Brix of syrup at final striking stage is fixed at 88% i.e.

in Kolhapur region the striking stage (Golli stage) is independent of initial Brix of cane juice.

b) Sugarcane varieties co-8014, co-671, are proved to be good for better quality jaggery.

3) From Table 3.4.3. it is observed that,

a) Sugarcane from soil type II i.e. black soil gives 20kg more jaggery than sugarcane from type I i.e. Aluvial type soil.

b) As compared to cane variety co-671, the cane variety co-8014 gives more production of jaggery.

4) From Table 3.4.4, it is seen that, average time required to attain striking points at morning, noon and evening time are 130.6 min, 131.6 min. and 141.2 min. respectively. This means evening time preparation requires about 10 min. more time than it is in morning and noon. Further it is found that preparation time remains approximately same in the morning and at noon.

5) From Table 3.4.5, it is found that, for satara region striking point temperatures for Kakavi stage is at 106°C and for final striking stage (Golli stage) it is at 120°C.

6) Table 3.4.5, also indicates that, average time required

to attain final striking stage for Kolhapur region is 146.5 min. and for Satara region it is 134.5 min. which means average time required to attain striking stage in Kolhapur region is more by 12 min.

7) It is also observed that the quality of jaggery prepared in Kolhapur region is better than in Satara region.

From our survey and investigations on jaggery manufacturing units we have arrived at following conclusions.

- 1) It is observed that for the units in Satara district striking stage temperature for liquid jaggery (Kakavi stage) is at 106°C while for the units in Kolhapur district, it is at 105°C .
- 2) On an average striking stage temperature for final stage (Golli stage) in Satara region is at 120°C and in Kolhapur region it is at 118°C .
- 3) Brix value of liquid mass at final stage measured was 89% for Satara region and it is 88% for Kolhapur region.
- 4) Average production of jaggery per 1000 litre of cane juice for Aluvial type of soil and co-671 cane variety is found to be 203.5 Kg. For black type of soil and co-8014 variety it is found to be 223.5 Kg. which means, co-8014 variety yielded more jaggery recovery on black type

of soil.

5) Striking stage temperature is not dependent on initial Brix of cane juice.

6) Direct heating of pan is done by burning of bugasse as a fuel. It has been found that there is variation in average time required to attain final striking stage, which is due to manual variation in fuel supply.

7) Regionwise variation in temperature of striking stages may be due to variation in altitude (As boiling point of water depends upon altitude).

Kolhapur is at the altitude of an average of 1800 feet above mean sea level and Satara is at the altitude of 1700 feet to 2100 feet above mean sea level.

8) Temperature is an important parameter in jaggery manufacturing process.

On the basis of these conclusions, we have developed an electronic device which can detect the two stages correctly. Thereby a field test is carried out in all 23 jaggery manufacturing units. It has been found that our electronic device gives an accurate as well as precise indication of two important stages in jaggery manufacturing process. In this way we are successful in

removing manual errors in the process of jaggery manufacturing by employing an electronic device.

Future Plan : The present process of jaggery manufacturing can be improved by developing more sophisticated device which can use microprocessor or microcomputer. This device can monitor the different parameters such as temperature, pH , density and viscosity simultaneously. It will give an appropriate instructions to the operator or supervisor in accordance with process time. For example, in order to obtain optimum bleaching and to produce good quality of jaggery one of the parameter say pH of the juice should be maintained or adjusted between 5 to 5.3 after removal of scum at 6.5 pH . The instrument will clearly indicate how much lime should be added, at what stage of the process. Thus complete manufacturing process may be controlled by such device and we earnestly wish to design and develop this device in near future.

REFERENCES

1. Maharashtra state Gazetteers, Bombay Satara district Gazetteers directorate of Government printing, stationary & Publications, Maharashtra State 1963. P 3-10.
2. Maharashtra state Gazetteers, Bombay Kolhapur district Gazetteer Directorate of Government printing, stationary & Publications, Maharashtra state 1960. P-2.