



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

Intermediate moisture foods





Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

Intermediate moisture foods (IMF)

- A food product that has a water activity below that which is required for the growth of microorganisms.
- Generally, they contain moderate levels of moisture, of the order of 20- 50% by weight.
- They contain sufficient dissolved solutes.
- **Principle: high osmotic pressure associated with high concentration of solutes.**



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

IMF

- Example:
 - natural products – honey.
 - confectionery products - jellies, jams, fruit cakes, etc.
 - partially dried products - figs, dates etc.





Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*



Honey



Dates and figs



Jam



Jelly



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

Jam

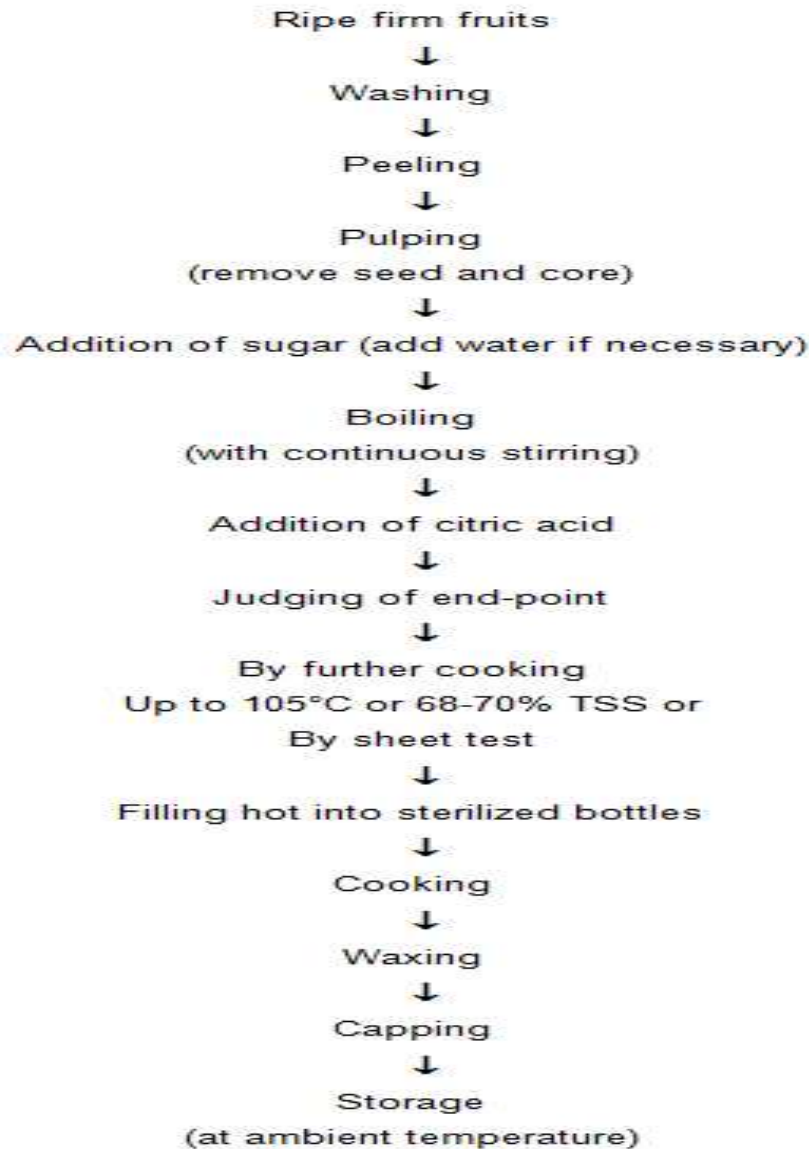
- Jam is a product made by boiling fruit pulp with sufficient amount of sugar to a reasonably thick consistency, firm enough to hold the fruit tissues in position.
- Apple, pear, sapota (chiku), peach, papaya, karonda, carrot, plum, straw-berry, raspberry, mango, tomato, grapes and muskmelon are used for preparation of jams.



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

Jam





Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

Problems

- Crystallization.
- Sticky or gummy jam.
- Premature setting.
- Surface graining and shrinkage.
- Microbial spoilage.



Microbial spoilage



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*



crystallization



Sticky jam



Premature setting



Surface graining



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

Jelly

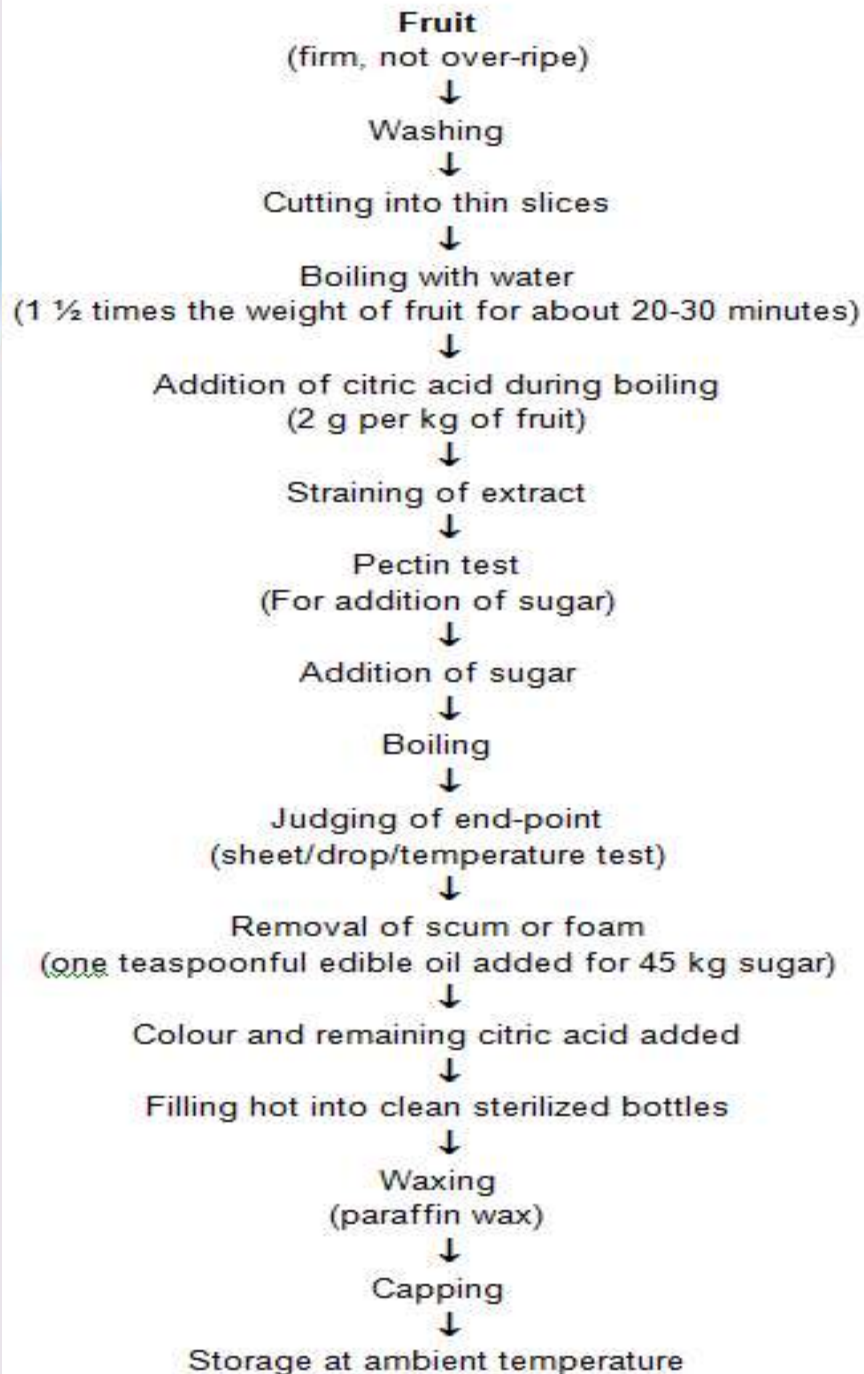
- semi-solid product prepared by boiling a clear, strained solution of pectin-containing fruit extract, free from pulp, after the addition of sugar and acid.
- Guava, sour apple, plum, karonda, wood apple, loquat, papaya and goose-berry are generally used.





Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...





Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

problems

- Failure to set.
- Cloudy or foggy jellies.
- Formation of crystals.
- Weeping of jelly.



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

Marmalade

- This is a fruit jelly in which slices of the fruit or its peel are suspended.
- used for products made from citrus fruits like oranges and lemons.
- Citrus marmalades are classified into
 - (i) jelly marmalade.
 - (ii) jam marmalade.





Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

Types



Jam marmalade

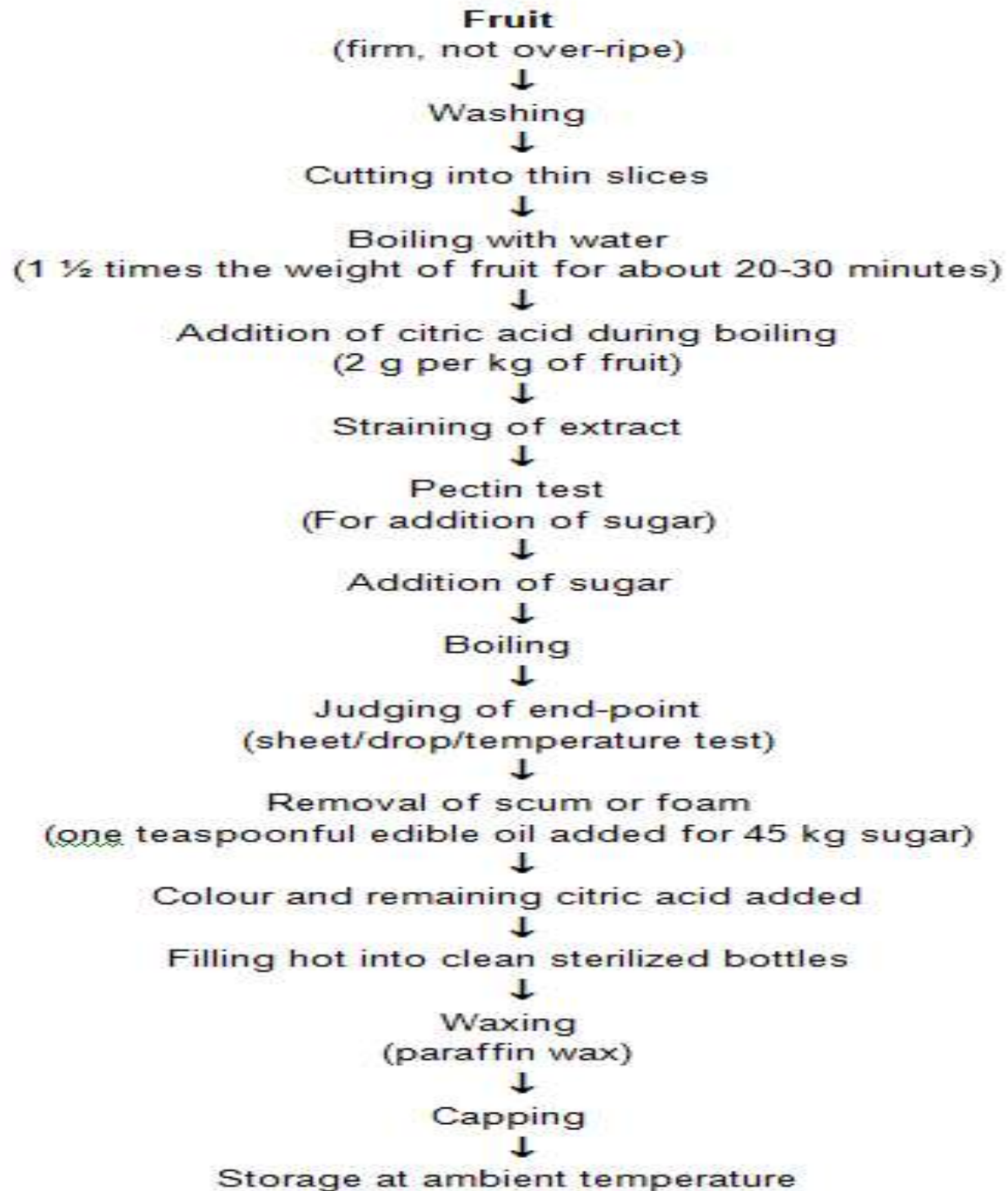


Jelly marmalade



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*





Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

FSSAI(Food Safety And Standards Authority of India)SPECIFICATIONS

Product		Specification
Jam		Fruit Pulp – 45% TSS(<i>Total soluble solids</i>)-65% Citric acid- 5g Preservative-40 ppm of SO ₂
Jelly		Fruit Pulp – 45% TSS-65% Citric acid -2 g Preservative-40 ppm of SO ₂
Marmalade		Fruit Pulp – 45% TSS-65% Citric acid -2 g Preservative-40 ppm of SO ₂ Shreds-62 g/lit



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

THANK YOU