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WATERMELON JAM SMALL-SCALE MANUFACTURE

Fully ripe watermelons that have a soft red flesh should be used for making jam. Watermelons contain little natural pectin so pectin has to be added to ensure the jam will have a good set. The yield of usable fruit from the whole fruit is approximately 43%.

Recipe

Fruit juice		74% (starting recipe)
Sugar		55% before boiling)
Green ginger	0.8%	
Pectin		0.4%
Citric acid		0.7%

In most countries, adding preservative to jam is not allowed. Only a residue of preservative is allowed in jam which has been made from fruit pulp which has been stored with chemical preservatives, (100ppm sulphur dioxide or 500ppm benzoic acid). Citric acid is not a preservative, it is added to adjust the pH. Jams give a gel when there is the correct ratio of pectin to water and the pH is between 2.5-3.45 pH. The optimum pH to give a good gel is pH 3.0.



Method

Wash whole fruit in clean water and discard any bad part of the fruit.

Remove the skin from the melon, cut the flesh into small pieces and remove the seeds. Mash the pieces into a pulp and strain through a muslin cloth.

Mix the pectin with a small portion of the sugar. This dry mixing of the pectin is important because pectin powder is very difficult to dissolve in water because it clumps together. If it is still a problem to dissolve, grind the sugar to a fine powder and then mix it with the pectin.

Mix the fruit juice, sugar, citric acid and green ginger in a stainless steel saucepan and start boiling the mixture. Near the end of the boiling process the pectin dry mix can be added. (The pectin should not be heated for longer than necessary because it will be broken down and then the jam will not set.) Jam should not be boiled for more than 12-15 minutes otherwise this can give rise to caramel flavours, over sweetness and discolouration, apart from being a waste of energy. By reducing the amount of water in the starting recipe the boiling time can be reduced.

The 'end point' is reached when the total soluble solids is up to 70% this is measured with a refractometer, (In most countries the legal minimum sugar levels in jam, are 65% for jam in hermetically sealed containers, and 68.5% for jam in non air tight containers.) 70% gives a safety factor. Jam with over 70% sugar can give problems during storage as sugar will recrystallise out into large chunks. The 'end point' is usually reached around 106-108C (depending on barometric pressure and height above sea level).

When the jam has nearly reached this temperature samples are taken and tested on a refractometer, the sample must be cooled before being measured. This can be done by smearing it on a cold dry plate or saucepan lid. All implements used to take the sample must be dry, otherwise the reading will be reduced. It is important to stir the jam at all times during the heating process, otherwise burning will occur at the bottom of the saucepan, causing off

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Watermelon Jam

Intermediate Technology Development Group

flavours and discolouration. When the 'end point' has been reached

the jam should be filled into jars which have been cleaned and then steamed to sterilise them, and are still hot so that the jars do not crack. The jars should be filled as quickly as possible so that the jam is not heated for longer than necessary, or recontaminated because it has cooled down before being sealed in the jar.

The lip of the jar should be clean and dry (wipe with clean tissue paper) before placing the lid on it. The filled jars can be placed in water to cool down the jam so that it does not keep cooking in the jar, the water level should be kept below the lid of the jar. The gel formation takes place as the temperature comes down to around 55C, if the jam is moved when the gel is forming the gel structure will be broken and the jam will not set.

Equipment list

Jars, omnia lids and labels

Omnia capper

Cooking facilities, gas ring, electric ring, etc

Stainless steel saucepan

Thermometer in protective jacket

Stainless steel cutting knife and spoon

Wooden spoon for stirring

Refractometer

Steam generator

Cutting board

Scales

brief

Source

Measuring cylinder

Funnel

Liquidiser

Mashing tool

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