



PICKLED PAPAYA

Green papaya is required to make pickle. The papaya should be green and very firm and harvested before the ripening process starts. If the papaya is used too early it will give a pickle with a bitter-milky flavour. The final product can be packed in glass jars or polythene bags (at least 100 micron, preferably a thicker gauge). The polythene bags are a very cheap form of packaging and can be made into very small packet sizes which are appropriate for marketing in rural areas. However, polythene is not a very good barrier for containing aromas, which attract ants, which in turn, will eat through the polythene very quickly. The yield of usable fruit from whole green papaya is approximately 70%.

Recipe

Prepared papaya	54%
Sugar	36%
Ground garlic	3%
Ground ginger	0.5%
Ground mustard seed	0.3%
Ground fennel seed	0.3%
Ground cumin seed	0.4%
Chilli powder	0.8%
Saffron powder or turmeric powder	0.1 %
Salt	2%
Acetic acid (80%)	0.3%
Lime juice	2%

The lime juice can be stored in bulk, if limes are not available when the papaya is in season, using preservative, (Sulphur dioxide or Benzoic acid at 1000-1500ppm). The garlic can be ground in bulk and kept for long periods, by mixing it with the salt which is required in the recipe. To make 200 x 1lb jars of papaya pickle requires approximately 13kg of sugar and 27kg of green papaya.

Method

Wash the whole fruits in clean water and discard any which is bad.

Remove the skin with a stainless steel knife. Cut the fruit into longitudinal segments and remove the seeds, then cut the segments into very small pieces (5mm cubes). This can be done by hand, or much quicker using a Kenwood dicing machine. Make a number of cuts in the segments with a sharp stainless steel knife, then push a segment through the dicer, which will turn it into very small chips of fruit.

Mix the papaya pieces with the sugar in a stainless steel saucepan, leave the mixture for ten minutes so that the sugar draws out the water from the fruit pieces. Then boil the mixture for ten minutes to evaporate off some of the water from the papaya, and soften the fruit pieces. Add all the dry spices to the saucepan, this is to cook the spices into the fruit pieces. The lime juice and acetic acid is added at the end of the cooking process. This prevents the loss of volatiles, which is very important in the case of the acetic acid.

The whole batch should be boiled down to 90% of the initial total weight of the ingredients in the saucepan. This will ensure that the pickle will have the correct consistency. Boiling down to the same finishing weight means that the same number of jars will be filled each time and produce a standard product.

Hot fill the pickle into jars which have been cleaned and then steamed to sterilise them and are still hot so that the jars do not crack. The lip of the jar should be clean and dry (wipe with clean tissue paper or steam) before placing the lid on it. Polythene bags do not need to be steamed inside as they are usually clean by the very nature of their manufacture. The pickle

should not be hotter than 90°C as this will soften the polythene. When tilling the bags no pickle must come in contact with the top of the bag otherwise it will not heat seal. The simplest way to do this is to use a wide neck funnel (which the pickle can be pushed down through) which slips inside a tube placed in the opening of the bag. The hot filling of the pickle into hermetically sealed jars will preserve the product until the jar is opened. The acetic acid (vinegar) stops the pickle deteriorating once the jar has been opened. The amount of acetic acid required in the recipe can be calculated using an empirical formula. Acetic acid is used instead of vinegar because it is much cheaper.

Total acetic acid = acidity x 100 % volatile acidity = Preservation
100 - total solids = % total volatiles

Index Reference: Pearson d (1976) *The Chemical Analysis of Foods* 7th edition Churchill Livingstone.

The preservation index should be above 3.5 for the pickle to be stable. However, pickles with a high sugar content (above 55% total solids) the formula does not work. The sugar has a preserving effect as in a jam. For this recipe the formula is not appropriate, as the total solids are approximately 60%. However, the recipe will produce a stable sweeter product.

Equipment list

Jars or polythene bags (at least 100 micron), and labels
Omnia lids or heat sealer
Cooking facilities, gas ring, electric ring, etc
Stainless steel saucepan
Thermometer in protective jacket
Stainless steel cutting knife
Wooden spoon for stirring
Steam generator (if jars are used)
Cutting board
Scales
(Kenwood dicing machine)
Funnel
Measuring cylinder

References and further reading

Pickled Cucumbers Technical Brief Practical Action
Pickled Dry Salted Lime Technical Brief Practical Action
Pickled Cabbage (Kimchi) Technical Brief Practical Action
Pickled Fruit Technical Brief Practical Action
Pickled Vegetables Technical Brief Practical Action
Preservation of Fruit and Vegetables: Agrodok 3, Agromisa 1997
Pickles of Bangladesh, ITDG Publishing 1994

Useful organisations and contacts

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Agromisa is a Dutch non-profit organisation affiliated with the Agricultural University of Wageningen in the Netherlands. Agromisa provides information and advice on small-scale sustainable agriculture and related topics in order to support and strengthen self-reliance of the rural populations in the South.

Food and Agriculture Organization of the United Nations <http://www.fao.org/>

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