



# MIXED FRUIT JUICE SMALL-SCALE MANUFACTURE

This is a recipe for a mixed fruit (ready to drink) juice, using pineapple and passion fruit. Passion fruit has a very strong, sharp flavour, which complements pineapple juice as this is rather weak in taste and colour. The yield of juice from whole passion fruit is approximately 30-35% and the juice has a pH from 2.6-3.0. The larger fruits give a better yield. The yield for pineapple is approximately 30% and the pH of the juice varies 3.4-4.1. The Mauritius variety has the best flavoured juice, but the Kewpine variety gives better yields. Pineapples contain the enzyme Bromelain. This is a proteolytic enzyme (breaks down proteins) which can cause problems for peoples' hands which are in contact with the juice for long periods during cutting operations. Gloves should therefore be worn and washed each day.

Recipe	
Sugar	17%
Passion fruit juice	3%
Pineapple juice	9%
Water	71%
Colouring	?%
Sodium benzoate	0.0188% (188ppm)

Benzoic acid is a preservative, which is added to the juice in the form of the salt sodium benzoate. (188ppm of sodium benzoate will give 160ppm of Benzoic acid.) Preservatives are controlled by legal limits, these limits vary from country to country and should be checked at your Bureau of Standards.

## Method

Wash whole passion fruits in clean water and discard any bad fruits.

Cut fruits in half with a stainless steel knife and scoop out pulp with stainless steel spoon.

Extract the juice from the pulp by liquidising the pulp at a very low speed (this stops the chipping of the seeds, which turn out as black specks in the juice, they are very hard to remove and look like dirt) for about one minute. Tip the contents into a muslin cloth and squeeze out the juice leaving the seeds behind. Liquidise the juice only, at high speed, this reduces the particle size and so helps to reduce settling in the final product.

Remove stalks and tops from the pineapple fruits, cut off the outer cortex and pick out the 'eyes'. Cut the fruit into pieces, discarding any fruit which is bad.

Make the pieces into fruit pulp by liquidising or passing through a Kenwood colander/sieve (large aperture). The juice can be separated from the pulp by squeezing it through a muslin cloth. Dissolve the sugar in the water and filter through a muslin cloth (sugar often contains dirt and foreign bodies). Heat the sugar and water to 95°C and then add the rest of the ingredients to the hot mixture (heating the sugar and water first, means that the fruit juice is heated up to temperature very quickly up to temperature and so reduces the loss of the sensitive flavour). Heat all the ingredients until the temperature reaches 90°C, hold at that temperature for one minute, then start the filling operation. It is important that the temperature is maintained as close to 90°C as possible.

The fruit juice should be filled into bottles which have been cleaned and then steamed to sterilise them, and are still hot so that the bottles do not crack. The bottles should be filled as quickly as possible so that the juice is not heated for longer than necessary, or re-contaminated because it has cooled down before being sealed in the bottle. The lip of the bottle should be clean and dry (wipe with clean tissue paper) before placing the cap on it. Lay the bottles on their side for 15 minutes to cool. Cooling on their side is a most important step to avoid contamination while the cap fits firmly down onto the glass as the vacuum forms.

### Equipment list

Bottles, crown corks and labels  
Crown corking machine  
Cooking facilities, gas ring, electric ring, etc  
Stainless steel saucepan  
Thermometer in protective jacket  
Stainless steel cutting knife and spoon  
Wooden spoon for stirring  
Steam generator (optional)  
Cutting board  
Scales  
Measuring cylinder  
Funnel  
Liquidiser  
Muslin cloth

### Equipment suppliers

Kenwood Limited  
New Lane  
Havant  
Hampshire  
PO9 2NH  
United Kingdom  
Tel: +44 (0) 23 9247 6000  
Fax: +44 (0) 23 9239 2400  
Website: <http://www.kenwood.co.uk/>  
Manufacture: Kenwood Chef, etc. Worldwide distribution.

### References and further reading

#### [Practical Action Technical Briefs \(Juices\)](#)

- *Lime juice –small scale production*
- *Lime cordial*
- *Nas naran lime juice*
- *Passion fruit juice*

[Lime Oil & Juice](#), Practical Action Technical Brief

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[\*Small-scale processing of ready to drink pineapple juice.\*](#) Food Chain No 27  
[\*Principles and practices of small and medium-scale fruit juice processing.\*](#) FAO Agricultural Services Bulletin 146, Food and Agriculture Organization of the United Nations (FAO), (2001).  
[\*Technical manual on small-scale processing of fruits and vegetables,\*](#) Food and Agriculture Organization of the United Nations (FAO)  
[\*Setting up and Running a Small Fruit or Vegetable Processing Enterprise: Opportunities in Food Processing\*](#) CTA  
[\*Starting a Small Food Processing Enterprise\*](#) by Peter Fellows, Ernesto Franco & Walter Rios Practical Action Publishing/CTA 1996  
[\*Small Scale Food Processing\*](#) 2<sup>nd</sup> Ed. P Fellows & S Azam Ali, Practical Action Publishing, 2003  
[\*Fruit and Vegetable Processing\*](#) UNIFEM Practical Action Publishing, 1993

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