



Tomato processing



SUBMITTED TO:- DR.SOMESH SHARMA
SUBMITTED BY:- ABHISHEK THAKUR





Tomato is grown in our country in abundance, both in summer and winter seasons, but those grown in winter are superior in quality because they contain more total solids. They are a good source of vitamin C. Fresh tomatoes are very refreshing and appetizing but cannot be stored for a long period. Often they are sold at distress prices during the peak harvest season and nearly 25 per cent of the produce is spoiled due to mishandling. Such losses can be avoided by converting tomatoes into delicious products. Large quantities of tomatoes are canned or made into paste, puree, juice, ketchup and sauce.

Tomatoes can be processed into a number of products:-



- Tomato juices
- Tomato puree and paste
- Tomato sauces/ketchup
- Tomato chutney
- Tomato soup
- Tomato chilli sauce

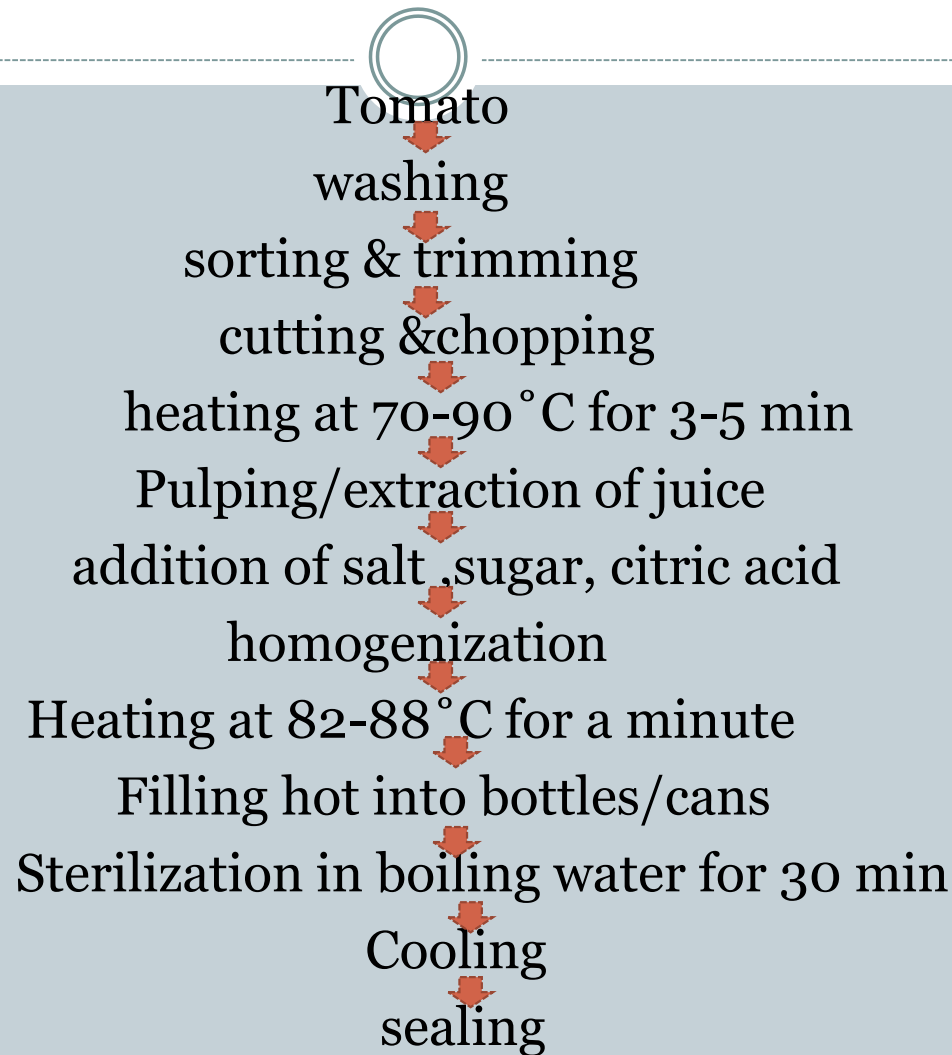


Tomato juices

Plant-ripened, fully red fruits are selected, discarding all green, blemished and over-ripe fruits. A good quality juice should be of deep red colour, possess the characteristic taste and flavour of tomato, contain about 0.4 per cent acid, be uniform in appearance and have high nutritive value. In addition juice should contain 0.5% salt, 1% sugar, 0.4% acid. Hot pulping is superior to cold pulping because in the latter case, extraction of juice is somewhat difficult and its yield is less. vit C is oxidised more rapidly.



Flow sheet for tomato juice



Tomato puree & paste



Tomato pulp without skin or seeds, with or without added salt, and containing not less than 0.9 per cent of salt-free tomato solids, is known as '**medium tomato puree**'. It can be concentrated further to 'heavy tomato puree' which contains not less than 12 per cent solids. If this further concentrated so that it contains not less than 25 per cent tomato solids, it is known as '**tomato paste**'.



Flow sheet for tomato puree/paste



Strained tomato juice



cooking to desired consistency



Judging of end point for pure/paste



filling hot into bottles/cans



sterilization in boiling water for 20minutes



Cooling



storage at ambient temperature

Tomato sauce/ketch up



It is made from strained tomato juice or pulp and spices, salt, sugar and vinegar, with or without onion and garlic, and contains not less than 12 per cent tomato solids and 25 per cent total solids.



Flow sheet for tomato sauce/ketchup



Tomatoes → washing → sorting/trimming → cutting/chopping
→ heating at 70-90 °C for 3-5mins → pulping → straining
tomato pulp/juice → cooking pulp with 1/3 of sugar →
putting spice bag & pressure occasion → cooking to 1/3
original volume of pulp/juice → removal of spice bag →
Add of remaining sugar & salt → cooking → judging of end point
→ addition of vinegar/acetic acid & preservative → filling hot
into bottles at about 88 °C → crown corking → pasteurization
→ cooling → storage at ambient temperature.

Tomato chutney



Chutney is basically a mixture containing fruits & vegetable along with species, salt, sugar, & vinegar. A good chutney is reasonable smooth, perishable & appetizing and have flavour of the fruits & vegetable used in preparation. As per FSSAI specifications chutney should have minimum 50%TSS & 40% fruit part.



Flow sheet for Tomato chutney



Tomatoes → washing → sorting → blanching for 2mins → putting quickly in cold water → peeling → crushing → addition of ingredients except salt & vinegar & cooking gently to desired consistency → add of preservative → filling hot into bottles → sealing → storage at ambient temperature.



Tomato soup



Soup is becoming very popular in homes. Stored soup is warmed at the time of serving.



Flow sheet for tomato soup



Tomato pulp/juice → boiling to concentrate →
putting spice bag in cooking pan → preparing paste
of butter and flour → addition to concentrated juice
→ cooking to desired consistency with continuous
stirring → addition of sugar and salt and cooking for
2 mins → removal of spice bag → filling into cans
→ sterilization → cooling → storage.

Tomato chilli sauce



It is highly spiced product made from ripe, peeled and crushed tomatoes and salt, sugar, spices, vinegar, with or without onion and garlic. The method of preparation is similar to that for tomato sauce except that the total unstrained pulp is used and seeds are not removed. Hot product is filled in bottles or cans and processed in water at 85-90 °C for 30mins.



Flow sheet for tomato chilli sauce



Tomatoes



Washing



Sorting



Blanching for 2 mins



Peeling



Cooking pulp with $\frac{1}{3}$ sugar



Rest of process similar to that of tomato sauce.

Problems with preparation of Tomatoes.



Black neck:- formation of black ring in the neck region of bottle is known as black neck. Its caused by iron which gets into the products from the matter of the equipments & the cap of crown wall through the action of acetic acid. This iron come into the contact with tannins in species forms ferrous tannate which is oxidized to ferric tannate.it can be prevented:-

- Filling hot sauce or ketchup at a temp not less than 85° C.
- Reducing contamination by iron
- Partial replacement of sugar by corn syrup or glucose syrup which contain sulphur & prevent blacking.
- Addition of 100ppm SO₂ or milligram ascorbic acid using cloves only after removing the head region.

A close-up photograph of a person's hand holding a bright red circular object. The object has a black smiley face cutout in the center. The hand is positioned around the object, with fingers visible on the right side. The background is blurred, showing some indistinct colors.

THANK YOU

FOR WATCHING