PUFFED RICE

BANSAL
EXIM TRADE

- Puffed Rice or Muri (Murmura) or Hurum is type of puffed grains from the Indian subcontinent.
- It is made from rice, commonly used in breakfast cereals or snacks food.
- It is served as a popular street food in India, Bangladesh and Nepal or street snacks in Korea.
- It is usually made by heating rice kernels under high pressure in presence of steam, through the method of manufacture varies widely

NUTRITIONAL VALUE

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Protein
75.50g per
100g

Carbohydrate
78.57g per
100g

Fat
0.95g per 100g

Ash 1.30g per
100g

Dietary Fiber
0.92 µg per
100g

MARKET POTENTIAL AND MARKETING ISSUES

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- The most common sight today would be Bhel puri - is a savoury snack originating from the Indian subcontinent, and is also a type of chaat. It is made of puffed rice, vegetables and a tangy tamarind sauce.
- Puffed rice is a popular low cost breakfast cereal and snack used worldwide because of its ready to eat (RTE), lighter and crispness characteristics.
- India produces annually 89 million tonnes of rice, but, only 10% of it is converted to different value added products such as puffed rice, popped rice or flaked rice.

TYPES OF PUFFING OF RICE

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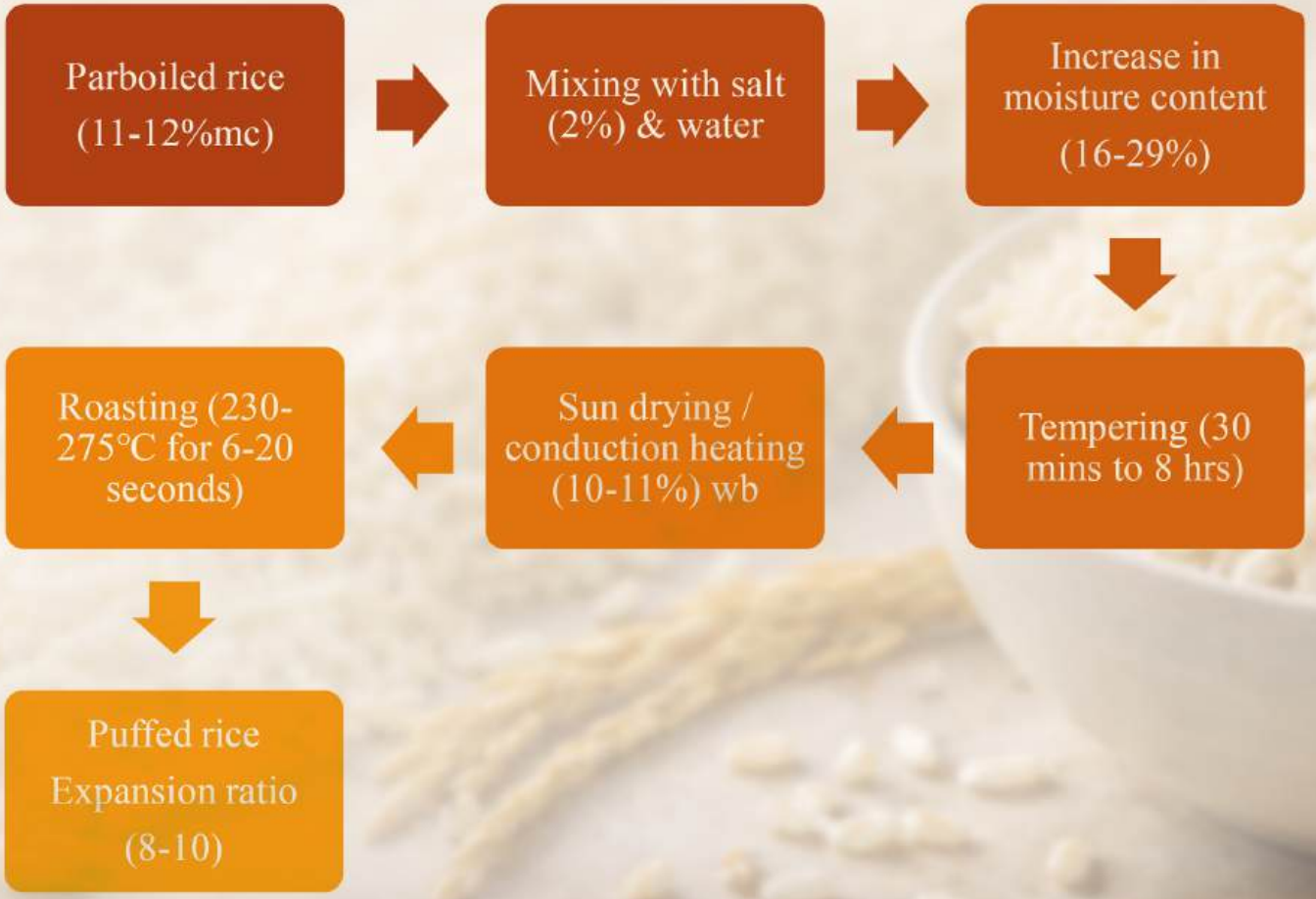
SAND PUFFING TRADITIONAL METHOD



SAND PUFFING OF RICE

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ROLLER PUFFING

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Dough with moisture content of 8-18 percent is fed into the rolls with temperature of 190°C to 440°C

The rolls are heated by radiant heat or by circulation of high temperature fluid media inside the cylinder.

Puffed products are obtained at 6 to 7 % moisture content.

ROLLER PUFFING MACHINE

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OIL PUFFING

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Pre heated rice (parboiled) is puffed in vegetable oil at 200 ℃ to 220 ℃ .

Puffed rice produced by this method have the expansion ratio of about 5-7.

AIR PUFFING

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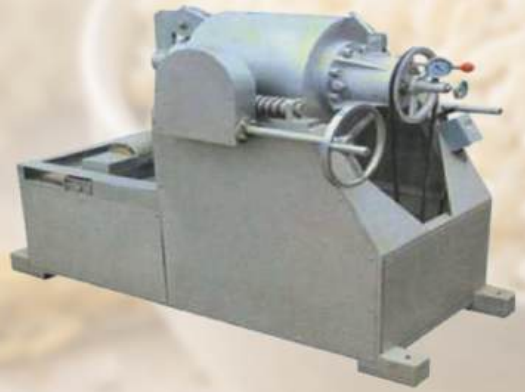
- Blast of air at 200 ℃ to 300 ℃ for 7 to 10 seconds is given to pretreated rice at 10 to 12% moisture content .
- Puffed rice produced by this method have expansion ratio of about 8 - 10%



EXTRUSION PUFFING

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The rice flour mix containing a 60-75% expandable starch base is moistened with water (or) steam

The resultant mass is compacted by a screw revolving inside a barrel, which may be heated by steam or electrical band heaters.

In some extruders, the rice premix is fed directly into the extruder.

The water and /or steam are injected into the barrel and mixed with the premix.

EXTRUSION PUFFING

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The pressurizing, shearing, and steam heating brings the dough to a temperature of around 150-175 ℃ and a pressure of 2.46 to 35.2 kg/cm^2 .

The dough pieces expands very rapidly as they leave the dice orifice

The expansion may even continue for a few seconds because the dough is hard and still flexible and water continue to boil off.

The pieces are further dried in hot air oven, cooled and packed.

EXTRUDERS USED FOR MANUFACTURING OF PUFFED RICE

GUN PUFFING

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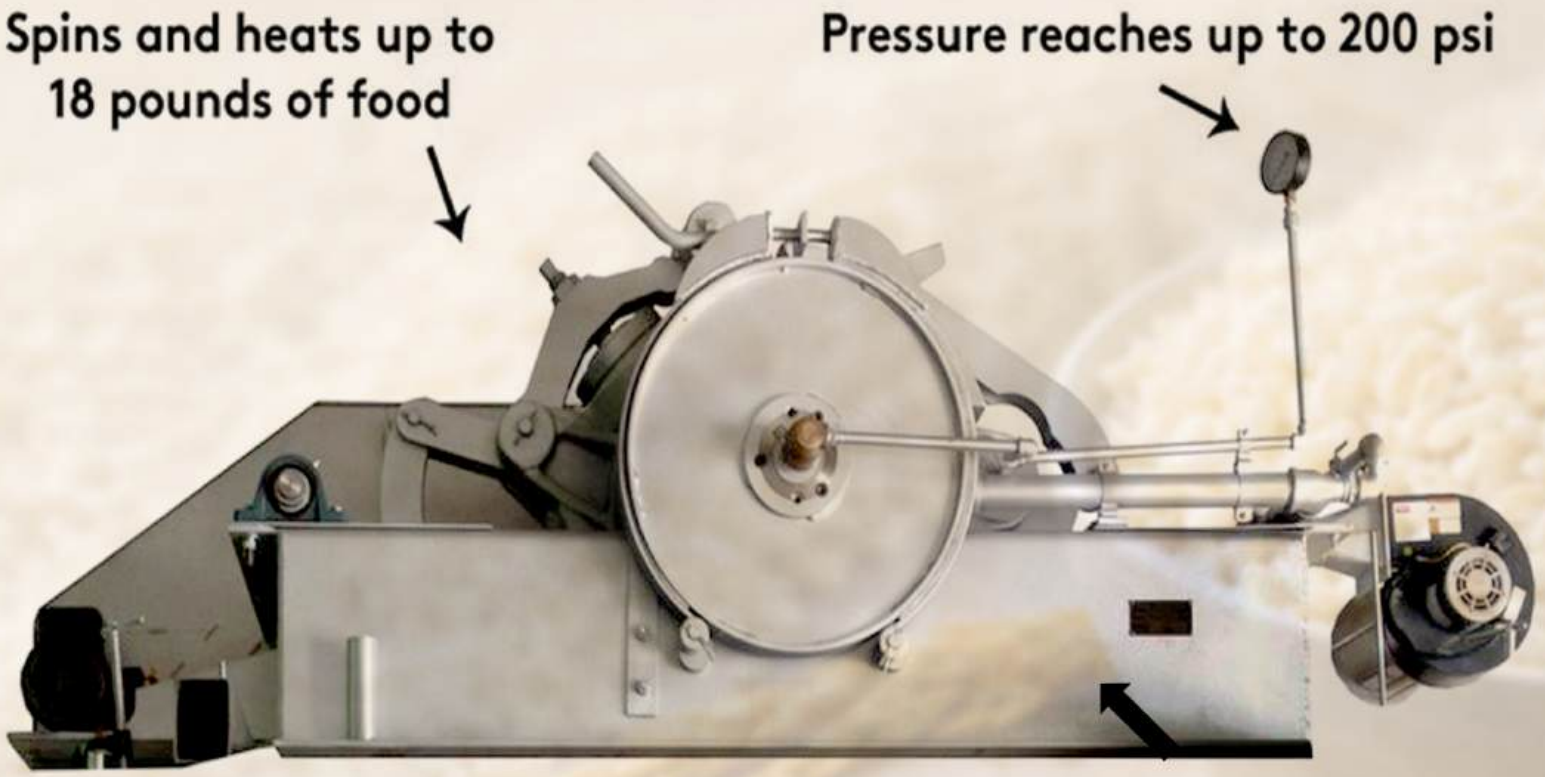
- In this process raw milled rice and other grains can be puffed.
- Pro-moistened pearled or unpearled grains are fed into a pressure vessel.
- The sudden release of chamber pressure causes the superheated water to flash into steam resulting in porous structure of the puffed products.
- After a short cooking time, the gun is suddenly opened to produce puffed rice.

GUN PUFFING MACHINE

BANSAL
EXIM TRADE



COMMERCIAL METHOD

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The grain is conditioned to the correct level of moisture and pressurised to around 200PSI.

When the pressure is suddenly released, the pressure stored inside the kernel causes it to puff out.

This method produces a puffed rice which is spongy in texture.

Puffed product should be maintained around 3 percent moisture in order to achieve the desired crispness.

It can also be made from white rice by heating it at high pressure & temperature.

PROCESS FLOWCHART