

Study on Mechanical Properties Test of Cashew Nut Hulling Machine

The cashew nut is an evergreen tree of the genus *Rana*, which is an important tropical dried fruit and oil tree in China. Its nuts are one of the world's four famous nuts (walnuts, almonds and hazelnuts), which are loved by the people of the world.

[Microwave drying machine](#)

Cashew nuts are all treasures. The fat content of cashew nuts is about 46%, the protein is about 21.2%, the carbohydrate is about 22.3%, and the energy is 2494kJ for every 100g. In addition, it contains a large number of essential amino acids, vitamins and minerals that people cannot obtain on a normal diet.



According to the company's visit and investigation, China's [cashew nut shelling machine](#) mainly adopts automatic cashew nut shelling machine and semi-automatic shelling machine in the process of cashew shelling. The semi-automatic shelling machine has a better shelling effect, and generally can be stabilized at more than 80%. The automatic shelling machine has a generally low shelling rate and poor stability.

This is mainly related to the state in which the cashew nut enters the cutting part of the automatic cashew nut shelling machine. When the cashew nut is in the fruit setting state, the shelling rate can reach more than 85%, but in other states, the shelling rate is not good, or the fruit is cut. Or if you only cut into the epidermis, etc., you can't get the complete nuts. The research group was commissioned by the company to carry out the mechanical performance test of the cashew nut shelling machine, and conducted preliminary experiments on the problem of the automatic cashew nut shelling machine in the shelling process.

in conclusion

During the automatic shelling test of cashew nuts, it was found that the size of the cashew nuts, whether the fruit was subjected to cooking pretreatment and mechanical related index performance, such as feeding method, guide rail material, fruit pushing speed, etc., had a great rate of cashew nut shelling and whole kernel rate. The impact of this test, therefore, the relevant research work on the above problems, the results show that: the fruit is pre-cooked (115 ° C, 20 min), using manual vertical feeding, rubber rail feeding, fruit push speed of 20r / min, can be obtained The fruit rate was better and the fruiting rate was 65.1%.

Because the rate of fruit set in the process of cashew shelling seriously affects the rate of whole kernels, the fruiting rate is far below 90%. Therefore, it is necessary to strengthen the equipment and improve the fruit yield. High rate of whole kernels.

Through the above experimental research, the machine can be improved in the following aspects:

1 In the process of designing the guide rail, the segmented guide rail is adopted, and the inlet is made of elastic material, which is beneficial to the falling of the fruit. The rigid material is used in the conveying process to facilitate the conveying of the fruit.

2 Design different guide rails for different sizes of fruit.

3 For mechanical feeding method, vertical angle feeding can be considered, and the distance between the falling fruit and the guide rail can be shortened.

4 During the process of shelling the cashew nuts, reduce the speed of the cashew nuts and increase the fruit setting rate and the whole kernel rate. 5 Reduce the distance between the feeding point and the plane of the guide rail based on the original equipment.