

## Design and experiment of three rolling cell sheller



In the research of cannabis breeding, there are small amount of cannabis, many varieties and different pod sizes. Aiming at the problems of low efficiency of artificial hulling, more damage of mechanical hulling and [hemp sheller](#) , based on the study of the characteristics of typical cannabis hulling machine, a scheme of small three-stage rotary hulling and single row three-drum parallel hulling is put forward to carry out hulling and rolling. Structural design of drum, rotary beating plate and transmission system, etc.

The results showed that when the rotational speed of the drum of [microwave drying machine](#) was 350 r/min, the clearance of shelling was 20 mm, and the beating plate was 3, the comprehensive index of hemp shelling was the best, with the net removal rate of 99.15% and the damage rate of 2.3%, which met the requirement of seed hemp shelling.

The shelling drum is composed of three parallel drums on the same axis, which can adjust the distance between the drum and the concave screen, increase or decrease the number of beating plates, and the pneumatic cleaning device is composed of centrifugal fan. For the purpose of community breeding, Baisha cultivars were selected as the research object. Through orthogonal test analysis, the optimum test was carried out by taking the rotational speed of drum, the clearance of shelling and the number of beating plates as the experimental factors, and the damage rate and the cleanliness rate as the experimental indicators.

Experts at home and abroad have made a thorough study on the law of hemp shelling damage, the principle and equipment of hemp shelling. Among them, Gao Lianxing et al. studied the characteristics of hemp shelling and the principle of conical drum shelling; studied the principle of vertical thin-layer shelling and the vertical conical shelling device; studied the double-drum pneumatic circulation hemp shelling machine. The shelling device consists of two primary and secondary shelling drums with different rotational speeds, shelling clearance and sieve hole clearance of concave plate.

Shelling is the essential part of cannabis harvest and the key to damage and loss of cannabis. Because of its biological characteristics and high moisture content during harvest, cannabis husking can not be synchronized with field harvesting. The damage of commercial cannabis shelling caused by seed

fragmentation has been a difficult problem. Seed germination rate is the primary goal of cannabis breeding and breeding. The shelling equipment needs higher shelling adaptability. Traditional hemp sheller not only has large model, difficult to adjust shelling clearance, fixed concave sieve and inconvenient seed cleaning, but also is not suitable for shelling operation in residential areas, and it is difficult to meet the needs of breeding research in residential areas.