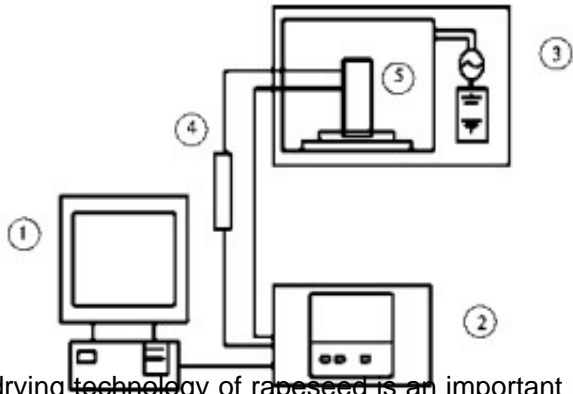


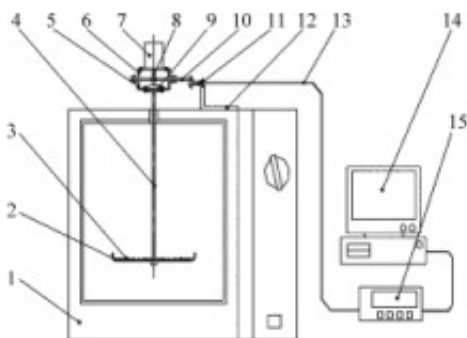
Research progress of rapeseed drying technology

Abstract



The drying technology of rapeseed is an important link in the process of rapeseed processing. The different drying methods and processes have a significant impact on the quality of rapeseed. Based on the research results of rapeseed drying mechanism, mathematical simulation, drying technology and quality analysis at home and abroad, the research progress of rapeseed drying technology at home and abroad was reviewed. The methods of hot air drying, warehouse drying, [microwave drying equipment](#), high voltage electric field and superheated steam drying of rapeseed were summarized, and the current situation was pointed out. The problems and shortcomings in the research of [rapeseed drying technology](#) were discussed. The development direction of rapeseed drying research was prospected. The aim was to provide reference for the follow-up research of rapeseed drying technology.

Keywords rapeseed, drying, current situation and progress



Rapeseed is the second largest source of vegetable oil in the world, next to soybeans. Its annual output is nearly 60 million tons. Among them, Canada, China, India and Australia are among the top domestic producers. The area and yield of rape in China ranked first in the world in the past 20 years. Rapeseed contains about 38% to 45% fat, 20% to 25% protein and 25% carbohydrates.

Rapeseed oil is not only an important edible vegetable oil, but also an important industrial raw material. The rapeseed cake after oil pressing is a high-quality livestock feed. Because rapeseed seeds contain erucic acid and glucosinolates, which are harmful to human health, the breeding and improvement of rapeseed varieties have been strengthened all over the world. At present, "double-low rapeseed" with low erucic acid and glucosinolates has become the first choice in major rapeseed planting areas. In addition, the processing technology of rapeseed has been improved continuously. Erucic acid and glucosinolates in rapeseed grains can be quickly removed during the processing, and the product quality can be improved.

Drying technology has been widely used in grain and oil storage as a common method to reduce the moisture content of new grain and oil crops to less than safe storage moisture. Rapeseed harvested in Meiyu season, followed by hot summer, but the moisture content of newly harvested rapeseed is generally higher. Because of its hydrophilic nature, it is easy to absorb moisture, which leads to fever, rancidity and mildew, resulting in waste of resources.

Therefore, artificial drying can ensure rapeseed moisture fast, stable and timely to reach a reasonable level, ensure the stability of rapeseed quality and prolong storage period. At the same time, after drying, the seed coat and cotyledon of rapeseed will be separated to a certain extent, and the oil and protein in the seed will accumulate separately, which will improve the crushing, shelling and oil squeezing efficiency of rapeseed. There has been more than 80 years' research on the drying of grain and oilseed crops, and the related drying technology is also more mature. The research in China is mainly focused on cereal crops, and the drying characteristics of oil crops are different from those of general cereals because of their rich oil and fat. There are few theoretical studies on rapeseed drying in China.