

## Value added products in Black Pepper

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### Introduction

Black pepper is known as King of Spices and Black Gold is the most important and most widely used spice in the world occupying a position that is supreme and unique. Kerala is the original home of pepper. It accounts for 95% of the country's area and production. In black pepper total area is 54% in India and production is about 26.6 %. [Value-added products](#) indicate that for the same volume of a primary product, a high price is realized using [processing](#), packaging, and upgrading the quality or other such be handled per unit area, also encourages the growth of ancillary industry and fetches increased foreign exchange. The majority of the total spices trade (about 85%) is in the raw and bulk form. Thus there is a vast scope for exporting processed and value-added spice products in India. Some of the value-added products in black pepper are White pepper, Canned green pepper, Crushed black pepper, Pepper oil, Pepper oleoresin

### White Pepper:

Ripened Black pepper Spikes are harvested from the vines and filled in gunny bags and allowed fermentation in water for about 5 to 7 days. The outer rind of the berries is then removed by rubbing them with hands in water and dried for 3 to 4 days. The berries that are dull white are further cleaned by winnowing and polishing them by rubbing with a cloth. The recovery of white pepper is about 25 % of ripe berries while that of black pepper is about 33 %.

### Canned green pepper:

Black pepper berries are harvested one month before attaining maturity for the preparation of the canned green pepper. The cleaned berries are immersed in 2% hot brine containing 0.2% citric acid exhausted at 80°C, sealed properly, and processed in boiling water for 20 minutes. The canned pepper is cooled immediately in a stream of running cold water.

### **Green pepper in brine:**

Freshly harvested green berries should be cleaned and washed. Berries are stored in brine and vinegar solution. Stored pepper in the solution is washed three times in 45 days at an interval of 20, 30, and 35 days. Brine solution should be changed at each interval of washing. The green pepper is then packed in cans with fresh brine solution.

### **Crushed black pepper:**


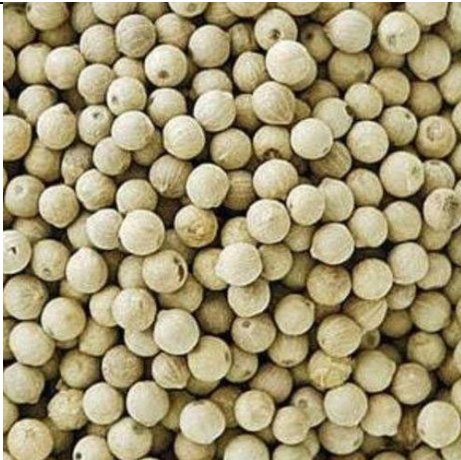


Dried quality black pepper is crushed and sieved in various mesh sizes based on the requirement of the market and packed in air-tight bags.

### **Piperine**

Piperine is the major bioactive component of pepper, which imparts pungency and biting taste. In black pepper, piperine content is derived from the outer and inner fruit. In black pepper, piperine content varies from 4.6 to 7.4 %. Piperine has many pharmacological effects and several health benefits, especially against chronic diseases, such as the reduction of insulin resistance and anti-inflammatory effects. In addition to the above, piperine has a high spectrum of physiological effects, including antihypertensive, antiaggregant, antioxidant, antitumor, antispasmodic, antiasthmatic, antidepressant, atherosclerosis, neurological conditions, and anxiolytic effects. The amount of piperine varies from 1-2% (long pepper) to 5-10% (black peppers). The piperine content of pepper can be influenced by many environmental factors including climate, growing conditions, and its place of origin.

### **Oleoresin:**

In black pepper, oleoresin can be extracted by cold extraction with solvents like hexane, ethanol, and acetone. For processing, pepper is flaked to a thickness of 1 to 1.5 mm and packed in stainless steel extractors for extraction with the organic solvent. Normally, a solid to solvent ratio of 1:3 is employed and the oleoresin recovery ranges between 10-13%.

	
<b>Black Pepper</b>	<b>White Pepper</b>
	
<b>Canned green pepper</b>	<b>Crushed black pepper</b>