

A COMPARATIVE STUDY OF THE RATE OF DECOMPOSITION  
OF ASCORBIC ACID IN STORED AND PRESERVED  
PEPPER (Capsicum Annum) USING  
RICE HULL AS RETARDANT

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by

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## CHAPTER I

### INTRODUCTION

Spices are among those important crops ever produced in the country. They are used as food flavoring and meat deodorizer. Sometimes, spices are good for pains and aches; they are even used as medicine for wounds and bruises.

Pepper is one of this kind of spices. Pepper or "sile" belongs to the Solanaceae family and scientifically known as Capsicum Annum.<sup>1</sup> Quisumbing describes this as:

...an erect, branched, smooth, annual herb, about 30 to 50 centimeters long and pointed at both ends. The leaves are ovate, 8 to 12 centimeters long and pointed at both ends. The flowers are axillary, solitary, and 1 to 1.8 centimeters in diameter. The petals are white or somewhat straw colored with recurved stalks. The fruit is of various sizes and forms depending on the variety.

Sile is commonly cultivated in various forms and varieties for its<sup>2</sup> edible fruit. It is a native of tropical America.

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<sup>1</sup>Bernard S. Cayne, ed. in chief, The Encyclopedia Americana (New York: Encyclopedia Americana Corporation, 1972), XXI, p.564.

<sup>2</sup>Eduardo Quisumbing, Medicinal Plants of the Philippines (Quezon City: Katha Publishing Co. Inc., 1976), p.853.

Peppers are rich in vitamins especially vitamin C and minerals like calcium, phosphorus, iron and a pungent ingredient known as capsaicin.<sup>3</sup> Peppers are used as condiment and extensively in flavoring meats such as sausages and vegetable foods. Besides being food flavoring and vegetable foods, they are also powerful local irritants and heart stimulants.<sup>4</sup>

Pepper plants are cultivated in cold places and grown like tomatoes. The fruits are harvested when mature green, since ripening continues after the picking of the fruits. The harvested fruits are stored for household consumption or transported to the market.

Peppers are shipped and transported to other parts of the country by bulk. Producers depended on bamboo baskets or "kaing" for packaging. This sometimes cause spoilage of peppers, since pressure on handling and temperature change cannot be avoided.<sup>5</sup>

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<sup>3</sup>P. S. Arya and S.S. Saini, "Variability Studies in Pepper (*Capsicum* Spp. L.) Variety," Agricultural Pamphlet, 5:8, September, 1957.

<sup>4</sup>Ibid.

<sup>5</sup>Domingo F. Panganiban, "Vegetable Production and Marketing in the Philippines; Pre and Post-Harvest Vegetable Technology in Asia," Agricultural Pamphlet, 2:116, February 7-12, 1977.

During storage, peppers gradually rot or decay; some of its components are lost or just decrease. Such components are protein, volatile oils, capsaicin and ascorbic acid.<sup>6</sup>

The ascorbic acid content of pepper reduces when peppers are beginning to show spoilage, since ascorbic acid easily oxidizes. The spoilage of peppers is attributed to sudden temperature rise and oxygen accumulation. Oxygen activates the ascorbic acid oxidase, which is responsible for the reduction and total loss of ascorbic acid. Ascorbic acid oxidase is a copper-protein complex, and ascorbic acid deteriorates rapidly in the presence of traces of copper catalyst.<sup>7</sup>

### Object of the Study

The purpose of the study is to investigate the maximum storage life of peppers and also to determine how the storage of peppers using rice hull as retardant, affects the ascorbic acid content of pepper.

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<sup>6</sup>Elaine Moore, "Food Spoilage," Food Preservation Journal, 11:3-5, 1972.

<sup>7</sup>Daniel N. Lapedes, ed. in chief, McGraw-Hill Encyclopedia of Science and Technology (New York: R.R. Donnelley and Sons Company, The Lake Side Press, 1965), I, p.623.