

**STUDY ON CHANGES IN ROOT SYSTEMS OF  
BLACK PEPPER (*Piper nigrum* L) AND SUPPORT  
TREE(*Gliricidia sepium* L ) BETWEEN TWO  
CONSECUTIVE SUPPORT TREE PRUNINGS**

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## ABSTRACT

Black pepper is highly demanding spice crop among the other spices which is known as 'king of the spices'. It requires a support for its optimum growth and development. *Gliricidia sepium* L is the common support tree used in pepper cultivation and it conferees additional benefits to pepper vine. But canopy growth rate of *Gliricidia sepium* is very high. Then there is a competition in between these two for sun light and other recourses. Therefore support tree pruning is needed to facilitate light penetration to pepper canopy and to reduce the competition. Considering this a study was carried out to study the changes in root systems of black pepper and support tree between two consecutive support three prunings, observing the root growth of Pepper vines with unpruned support tree canopy and Pepper vines with pruned support tree canopy. Obtained results revealed that there is a significance difference in between pruned and unpruned *Gliricidia* plant root length. Mean root length of unpruned *Gliricidia* plant was higher (956.49 cm) than the pruned *Gliricidia* plant root length (543.37 cm). And also there is a significant difference in between root lengths of Pepper under pruned and unpruned *Gliricidia*. Mean root length of pepper under pruned *Gliricidia* (625.35 cm) was higher than the root length of pepper under unpruned *Gliricidia* (368.08 cm). There is a positive correlation between *Gliricidia* canopy growth rate and the length of *Gliricidia* fine root. But there is a negative correlation between *Gliricidia* canopy growth rate and the length of fine roots of pepper. Therefore the pruning of support tree canopy is greatly affected on the growth of the root systems of both pepper and *Gliricidia* plants.

**Key words:** Black pepper, Support tree, Root system, Pruning