

**PHOTOSYNTHETICALLY ACTIVE RADIATION AND SOIL
MOISTURE ON DIFFERENT YIELD ATTRIBUTES OF BLACK
PEPPER (*Piper nigrum* L.)**

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Black pepper popularly known as “king of spices” is one of the earliest spices known to man and is the largest commodity in the international spice trade. *Gliricidia sepium* (Watahiriya) is the most popular support tree in black pepper cultivations in Sri Lanka. The lopping of the support tree can be used as mulch and it helps to improve different soil physical and chemical properties including soil moisture. However, shade due to *Gliricidia* canopy may affect on Photosynthetically Active Radiation (PAR) absorption by black pepper canopy. Therefore, this study was conducted to analyze the effect of PAR interception and soil moisture on different yield parameters of black pepper. Four treatment combinations of support tree pruning and mulching were applied to the selected black pepper vines (48) and maintained until end of the study period. Data on micro-meteorological conditions and different yield parameters were recorded with two weeks' intervals. The experimental design was Randomized Complete Block Design (RCBD) with three replicates. One replicate contained four plants in a plot and there were twelve plots. Yield attributes of black pepper spike such as length (11.28 cm), filling percentage (87%), number of fruits (54.50), fresh berry weight (60.08 g) and dry berry weight (10.03 g) were significantly higher in black pepper vines with the treatment combination of pruned *Gliricidia* canopy and mulched with *Gliricidia* lopping. Highest PAR interception and higher soil moisture retention were also recorded within the same treatment combination. Therefore, PAR interception and soil moisture may be the most important environmental factors for the yield characters of black pepper. Removal of the support tree canopy enhanced the PAR interception through black pepper canopy. Mulching improves the soil moisture retention within black pepper root zone and ultimately it will affect on improvement of different yield parameters.

Key words : Black pepper , PAR, Soil moisture, Support tree, Yield parameters