

## SHORT COMMUNICATIONS

### DIURNAL CHANGES IN SPECIFIC LEAF WEIGHT AND STARCH CONTENT IN COCONUT LEAF (*COCOS NUCIFERA*. L.)

K. V. KASTURI BAI, A. RAMADASAN AND K. V. SATHEESAN

*Central Plantation Crops Research Institute, Kasaragod, Kerala*

In a study on the seasonal changes in the carbohydrate fractions in the leaves of young West Coast Tall Coconut palms, Kasturi Bai and Ramadasan (1976) reported considerable increase in total carbohydrate content during February-

April when rainfall was scanty, and the duration of sunshine averaged 8-9 hours per day, as against a low concentration during July-August, when the rainfall was plenty and the duration of sunshine averaged 2-5 hours per day. Similar

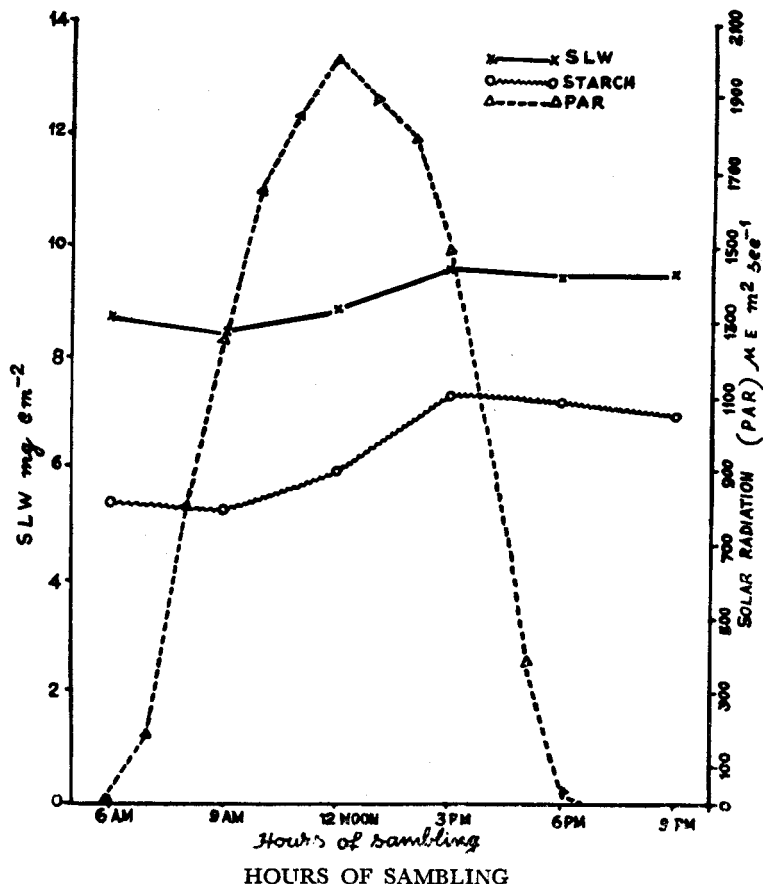


Fig. 1. SLW and starch content in relation to solar radiation on day-1

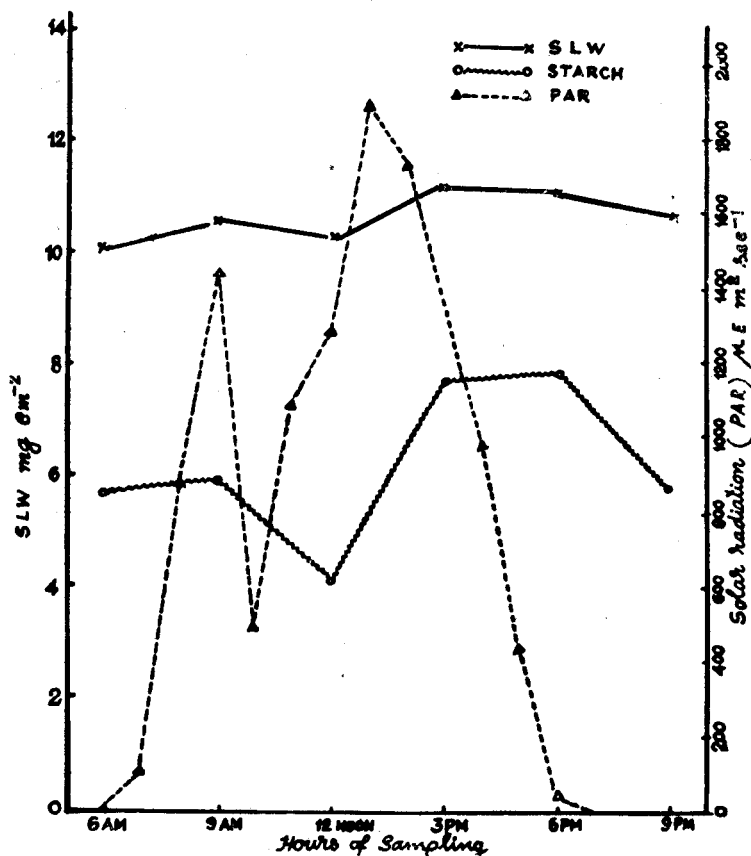


Fig. 2. SLW and starch content in relation to solar radiation on day-2

drastic changes were noted in the starch and sugar contents also. The present study relates to the diurnal changes in the specific Leaf Weight (SLW) and starch content in the leaves of Tall Coconut palms.

Sampling was done from the youngest fully opened frond in a batch of 7-year old tall palms, fully exposed to sunlight, at three hour intervals from 6 a.m. to 9 p.m. The samples were collected for 8 days in summer months. After determining the dry weight the samples were analysed for starch (Highkin & Frankel, 1962 ; Somogyi, 1952). The mean values of sunshine hours, SLW and solar radiation for 7 days when there

was bright sunshine throughout are given in Fig. 1 and that for 8th day when a cloudy period intervened is given separately in Fig. 2. The SLW and starch content increased beyond 6 a.m. but decreased beyond 9 a.m. upto 12 noon on day-2 (fig. 2). Such drop was not observed on day-1 when there was no cloudy break intervening (Fig. 1). Thereafter both these factors reached the highest levels by 3 p.m. on both days. While the starch content maintained almost the same level upto 6 p.m. and then decreased by about 45% by 9 p.m., the SLW recorded a slight decrease beyond 6 p.m. On day-1 when there was no cloudy break, both the starch content

and SLW increased beyond 9 a.m. reaching the maximum at 3 p.m. and then decreased slightly. The changes in SLW and starch content between different timings were significant at 5% and 1% levels respectively. A significant (10% level) linear relationship ( $r = -0.7961$ ) between the SLW and starch content was also observed.

Similar relationship between the SLW and starch content and their dependence on incident solar light intensity has been reported in the case of *Medicago sativa* L. and *Zea mays* L. (Chatterton, Lee and Hungerford, 1972). The intimate influence of incident solar radiation on SLW has been reported in the leaves of *Onobrychis visiofolia* Scop. (Straley, Cooper and Carleton, 1974). The synthesis and accumulation of photo-

synthates in the leaf, and dry matter production appear to be influenced greatly by short term changes in the environment, especially the duration of solar radiation.

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