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5.6: Seasonal changes of ecophysiological responses of *Hymenaea courbaril* L.

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The increase in the concentration of atmospheric CO₂ and the likely associated climatic changes became a subject of most interest from several points of view. In Brazil, this issue is especially important due to the presence of the major tropical forests. Thus, it is important to produce scientific data about the native plants that could help to explain their role in the global carbon balance. It is obviously known that the photosynthetic process is key for this task and several experiments have been or are now being performed to understand the responses of plants to atmospheric CO₂. In this work, we monitored the CO₂ assimilation for 1 year, two times a week between 6am and 6pm with the aim to gather information on how *Hymenaea courbaril* responds during the four seasons in a year. Our results show that the higher assimilation rates occurred during the spring (the growing season) but that the periods during the day in which photosynthesis occurred were larger in the summer. A positive correlation (0.6) was observed between CO₂ assimilation and the PPDF but no correlation was found with humidity. This is a large data set that describes in detail the photosynthesis related events during a whole year, which allowed the evaluation of the seasonal behaviour, a key approach to help understanding of carbon balance in the rain forest.