

フタバガキ科熱帯林業樹種 *Shorea leprosula* の茎の成長と新葉の関係Relationship between leaf and stem growths of a tropical timber tree, *Shorea leprosula*, in the family Dipterocarpaceae

東南アジアの代表的な林業樹種を多く有するフタバガキ科では、数年に一度しか開花・結実が起こらず植林に適したサイズの苗木の供給に課題がある。また、木材生産に気候変動が与える影響を理解することは喫緊の課題となっている。これらの課題の解決には、苗木成長や木材生産の基礎である茎の伸長成長制御機構の理解が不可欠である。フタバガキ科の林業樹種である *S. leprosula* を材料に、茎の伸長制御機構を検討した結果、茎は葉と同調して断続的に成長し、葉の切除により茎の伸長が顕著に抑制されることを明らかにした。葉の成長は茎の伸長の制御要因となっており、その制御機構の解明は、木材生産や適切なサイズの苗木の安定供給に役立つことが期待される。

Dipterocarpaceae is an important timber family in Southeast Asia. Dipterocarp species flower at irregular intervals (3–10 years), hindering seed collection and the provision of good planting materials. Because stem elongation is a basis for seedling growth, we studied the regulation of stem elongation of a dipterocarp, *S. leprosula*. As a result, we found that stems of *S. leprosula* intermittently grow and that the stem growths were positively regulated by growing leaves on the stems. These results suggest that it is important to understand how leaves regulate stem growth. We believe that our results will contribute to understanding the regulation of seedling growths of dipterocarps, leading to a stable supply of planting materials.

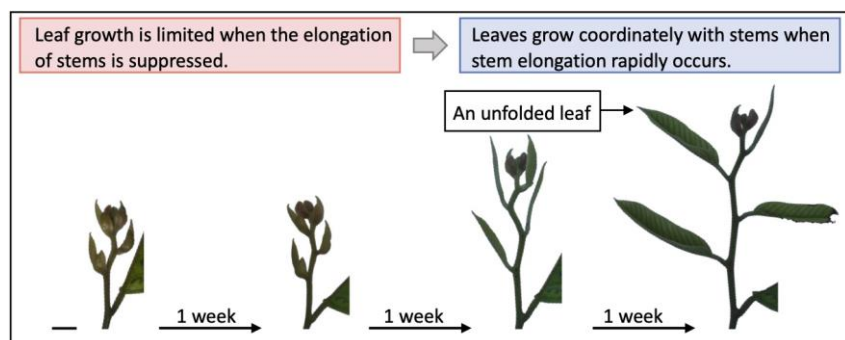


図1 断続的に成長する *S. leprosula* の枝での茎と葉の変化

S. leprosula の枝を1週間ごとに観察した結果を示す。*S. leprosula* の枝では、左側2つのように数週間にわたりほとんど茎の伸長が見られない時期と、右側2つのように急速に茎が伸長する時期が存在し、断続的な伸長を示す。茎と葉は同調して成長するため、急速に茎が伸長する時期にだけ、葉が成長し展開する。スケールバーは、1 cmを表す。

Fig. 1. The leaf and stem growths on an intermittently growing *S. leprosula* branch

The figure shows the result of weekly observation of an *S. leprosula* branch. As shown in the two pictures on the left, *S. leprosula* branches show a growth-arrested phase for several weeks. However, during an active growth phase as shown in the two pictures on the right, the rapid growth of branches is observed. Due to the active growth and growth-arrested phases, *S. leprosula* branches grow intermittently. Leaves and stems grow coordinately on *S. leprosula* branches. Young leaves rapidly grow and are unfolded when stems show clear elongations. Scale bar indicates 1cm.

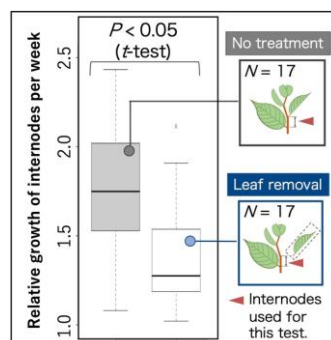


図2 茎の伸長に対する成長する新葉の効果

成長中の *S. leprosula* の枝において、成長する新葉を実験的に切除した場合(右)、無処理の場合(左)と比べて、新葉の基部側の茎(節間: 赤い鋸部分)の伸長が有意に小さくなった。Nは実験に用いた枝の数を示す。

Fig. 2. The effect of growing leaves on the internode growths of *S. leprosula*

The relative growths of the internodes whose growing leaves were experimentally removed (right) were significantly smaller than those of the control (left). The red arrowhead indicates the position of internodes measured to test the changes in growth rate. N represents the number of branches used for the experiment.

Reference : Kobayashi et al. (2021) *JARQ*, 55(3):273–283
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