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This Week's Citation Classic

Addicott F T & Lyon J L. Physiology of abscisic acid and related substances. *Annu. Rev. Plant Physiol.* **20**:139-64, 1969. [University of California, Davis, CA]

The article reviewed what was known of abscisic acid in 1969. By then the chemistry was fairly well understood, a number of analogs had been synthesized and tested biologically; functions in plant growth, abscission, dormancy, and senescence had been identified. [The *SCI*® indicates that this paper has been cited over 195 times since 1969.]

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"We claim no special credit for the popularity of this review. It simply happened to be the first comprehensive discussion of the physiological action of a substance now recognized as one of the five major plant hormones. Abscisic acid (ABA) has hormonal functions in the control of: (a) abscission; (b) seed and bud dormancy; (c) stomatal closure and cell permeability generally; (d) stress responses especially to water deficiency; and (e) fruit ripening and other senescence phenomena. Further, it is a potent growth retardant.

"The origin of the name abscisic acid is a fascinating story that has never been told completely and can only be outlined here. Our research on ABA was initiated and led in the early years (1950-60) by H. R. Cams who detected an auxin antagonist in diffusates from young cotton fruit and discovered that the activity of the substance was correlated with abscission of the young fruit. Research on the chemistry of the substance progressed rapidly after K. Ohkuma joined the group in 1962. This culminated in the isolation of ABA (which we then called abscisin II), its crystallization and partial characterization in the spring of 1963. We reported our work in July 1963 at the International Colloquium on Natural Regulators of Plant Growth at Gif, France.[2]

"It soon developed that the name abscisin II was repugnant to commercial interests who hoped that P. F. Wareing's tentative name 'dormin' would become a useful trade name. (However, that name had already been usurped by a sleeping pill.) Also, 'abscisin IT appeared awkward and chemically impractical to J. W. Cornforth, who seemed to favor almost any other name as long as it ended in ' —ic acid.' Our group had no desire to change the name, but through the influence of Cornforth, the nomenclature was made an issue and placed on the agenda of the 6th International Conference on Plant Growth Substances in 1967 at Ottawa. Consequently B. V. Milborrow and F. T. Addicott, representing their two groups, worked out the compromise name abscisic acid and the acronym ABA and recommended them to the plenary session of the Conference.[1] The name was accepted by the Conference and remains the official designation."

1. **Addicott F T, Cars H R, Cornforth J W, Lyon J L, Milborrow B V, Ohkuma K, Ryback G, Smith O E, Thiessen W E & Wareing P F.** Abscisic acid: a proposal for the redesignation of abscisin II (dormin). (Wightman F & Setterfield G, eds.) *Biochemistry and physiology of plant growth substances.* Ottawa, Canada: Runge Press, 1968. p. 1527-9.
2. **Addicott F T, Carns H R, Lyon J L, Smith O E & McMeans J L.** On the physiology of abscission. (Nitsch J P, ed.) *Regulateurs naturels de la croissance vegetale.* Paris: Cent. Nat. Rech. Sci., 1964. p. 687-703.