Abstract

Microtubules, which are made of polymers of α- and β-tubulin, are an integral part of the cytoskeleton. Both types of tubulin share a considerable sequential homology across eukaryotic organisms. Tubulins are encoded by relatively large gene families. The expression of these genes produces different tubulin isotypes, some of which may exhibit different properties. Tubulin isotypes can be further posttranslationally modified. The best known posttranslational modifications of tubulin include acetylation, phosphorylation, tyrosination, polyglutamylation and polyglycylation. The tubulin code arises from the combination of expression of different tubulin isotypes and their posttranslational modifications. As a consequence, microtubules in cells can be composed of a „mixture“ of different tubulins with distinct functions and properties. Even though the existence of the tubulin code has been proven in every model organism, plants included, the precise understanding of the meaning of microtubules being composed of different tubulins is still subjected to research. Much of the research on the tubulin code has been carried out on animal models. In contrast, relatively little is known about the existence of the tubulin code in plants. This theses summarizes current knowledge on the localization and regulation of tubulin isotypes and their posttranslational modifications in plants.