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Why Do Leaves Fall in Autumn?

They suffer from thirst

For a long time, people thought that trees leaves die because the trees enter in a benumbed phase to face the cold season. But in fact, it is not the cold what affects most a tree during the winter but ... drought. Even when the trees live in a wet climate, with an abundant snowfall and rainfall during the autumn, they will suffer from thirst. Cold provokes what is called physiological drought. The absorption forces do not suck enough water to compensate the water loss at the leaf level at cold temperatures. Leaves have as the main function the photosynthesis: using water, carbon dioxide and light they generate organic compounds and oxygen. But in order to induce a suction force, they constantly sweat. Because the leaves have a large surface, they sweat huge water amounts, so the trees must shed them during the winter in order not to get dried, as the stem and branch surfaces are much smaller. Moreover, the thick bark sweats much less. In fact, trees that do not shed the leaves in autumn, like coniferous trees, are extremely adapted to drought. Their leaves are very small (this decreases sweating surface) and covered with wax (which impedes water loss). Thus, in fact, trees in temperate-cold climate shed their leaves from the same reason as tropical trees during the dry season. But what triggers the mechanism of falling leaves: temperature or an inner clock? Despite the traditional belief, weather plays no role. The trees possess an inner clock which is triggered by the length of the daylight. The shrinking daylight in autumn activates it, and the trees will lose their leaves even in the warmest falls. The opposite is also valid: the warmest winters will not trigger the greening of the trees. Some leaves also seem to have a genetic longevity, being programmed to die after a certain period. Some plants cultivated in contra-season will die in full summer. And greenhouse plants, at constant light and temperature, will fade after a while.