

Abstract

Water is one of the main limiting factors of plant growth. Availability of water on our planet is decreasing, and if we add fast-growing human population, we have a problem growing. Scientists from all around the world, especially those from arid regions, are facing a big problem, which is an attempt to make the most efficient use of water by plants. If this problem should be solved, we need to understand the issue of Water Use Efficiency (WUE). This paper attempts to summarize the current knowledge related to the issue of WUE, mainly focused on anatomical and physiological parameters control of WUE, which is focused primarily on the issue of evapotranspiration. Another part focuses on clarifying the issue of WUE at the gene level and the related biotech opportunities. At the end of the work are discussed possibilities of increasing WUE using irrigation techniques.

Key words: water use efficiency, evaporation, transpiration, stoma, stomatal density, abscisic acid, ERECTA