

Abstract

Water is important for many vital processes, and a lack of water in plants causes drought stress. In case plants survive drought, they can be better adapted for subsequent drought periods. This is defined as stress memory, which will last for a certain period after the stress ended, and can even be transmitted to offspring to help it deal with stressful environment. In such case it is called an inter- or transgenerational stress memory and is probably mediated by chromatin modifications or non-coding RNAs. In this thesis, I collected and discussed original papers dealing with the molecular basis of this phenomenon in drought-stressed plants, focusing mostly on various methodical aspects. It is evident that the maintenance of chromatin modifications across generations is quite a complex process. Currently available information is still scarce, concerns mostly DNA methylation, is incomplete and conflicting. To better understand this topic in the future, the methods of analysis of these modifications need to be adjusted (and focus also on histone modifications), the general design of the experiments has to be improved (analysed generations subjected to stress/control conditions, drought verification, number of replicates) and some factors that can affect plant stress memory should be purposefully examined (plant species and genotypes, way/duration/time of drought simulation, developmental stage, sampled tissue, etc.).