

Abstract

Small RNAs (sRNA) are broadly defined as regulatory molecules of 21-24 nucleotides in length which belong to the class of noncoding RNAs. They usually originate in response to the presence of double-stranded RNA in the cells and facilitate transcriptional and posttranscriptional gene silencing of complementary sequences. Their role lies not only in defence against exogenous nucleic acids, but primarily in the regulation of endogenous genes. Typical target molecules of plant sRNA are transposable elements and genes encoding the transcription factors involved in the control of key developmental transitions like the initiation of the reproductive phase and the regulation of its progress. The aim of this thesis is a summary of functional roles of individual small RNA in plant reproductive development, with focus to the female and male gametophytes and in the protection against the transition of transposable elements to following generations. Both endogenous and exogenous sRNA are amply utilized in plants, because they provide an immediate and direct response of the organism to rapidly changing conditions, and thus undoubtedly belong to the key factors which contribute to their phenotypic plasticity.