

Abstract

The cytosine DNA methylation and demethylation have a role in regulating plant responses to the environment by affecting the promoter regions of most plant defense-related genes through the CpG islands or the CCGG motifs. Salicylic acid, a defense and signaling plant hormone, is seen playing crucial role in the variation of the methylome. In this study, the effects of salicylic acid and feeding of the millet headminer (*Heliocheilus albipunctella* de Joannis) on pearl millet DNA methylome changes were evaluated through MSAP epigenotyping during panicle development. The results showed that millet headminer feeding increased the level of genomic methylation while application of salicylic acid caused DNA demethylation occurring mostly at external cytosine and accompanied by a decrease of the number of larvae per panicle. This suggests that hemimethylation (external cytosine methylation) has key role in regulating defense responses and conferring tolerance to pearl millet through salicylic acid application.