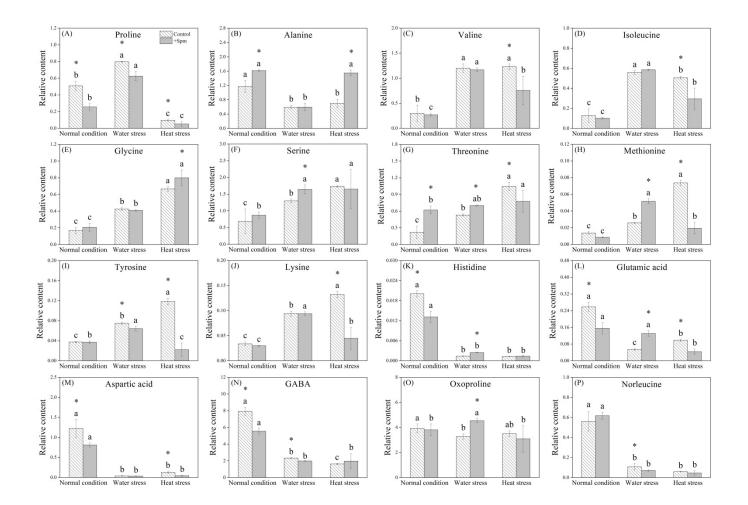
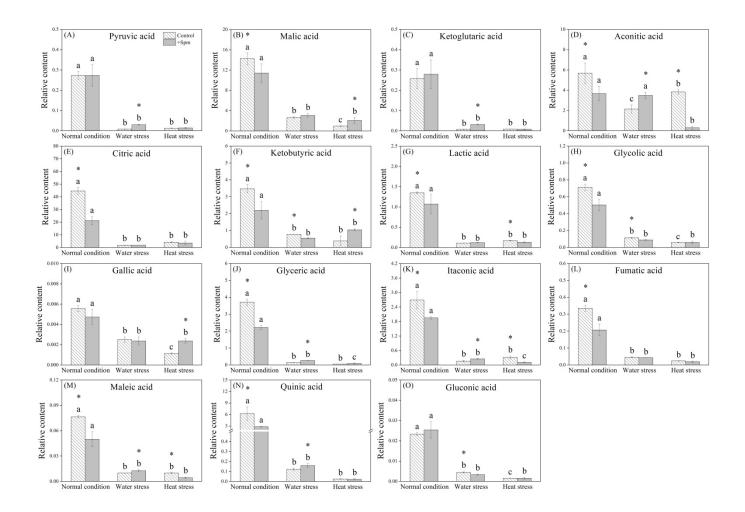


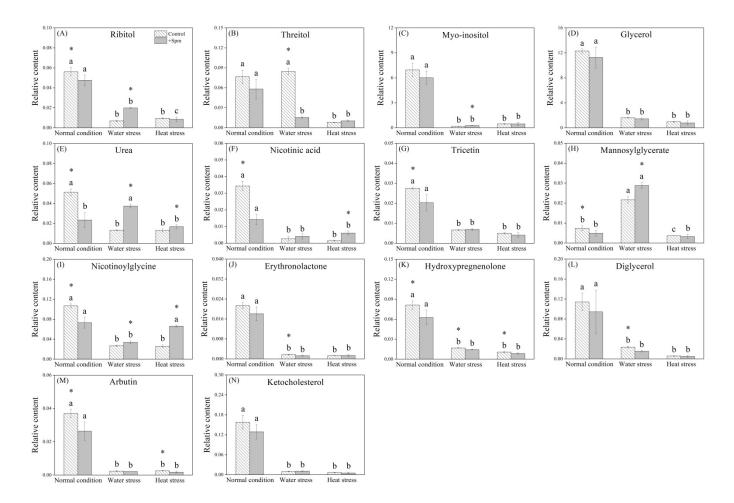
**Fig. S1** Changes in relative content of 16 sugars in response to the Spm application under different conditions. Vertical bars indicate  $\pm$ SE of mean (n=4). Different letters above striated or gray columns indicate significant differences for a particular treatment (Control or +Spm) for comparison among normal condition, water stress, and heat stress; the asterisk "\*" indicates significant differences between the Control and the +Spm under one particular condition (normal condition, water stress, or heat stress) based on LSD (*P*<0.05).



**Fig. S2** Changes in relative content of 16 amino acids in response to the Spm application under different conditions. Vertical bars indicate  $\pm$ SE of mean (n=4). Different letters above striated or gray columns indicate significant differences for a particular treatment (Control or +Spm) for comparison among normal condition, water stress, and heat stress; the asterisk "\*" indicates significant differences between the Control and the +Spm under one particular condition (normal condition, water stress, or heat stress) based on LSD (*P*<0.05).



**Fig. S3** Changes in relative content of 15 organic acids in response to the Spm application under different conditions. Vertical bars indicate  $\pm$ SE of mean (n=4). Different letters above striated or gray columns indicate significant differences for a particular treatment (Control or +Spm) for comparison among normal condition, water stress, and heat stress; the asterisk "\*" indicates significant differences between the Control and the +Spm under one particular condition (normal condition, water stress, or heat stress) based on LSD (*P*<0.05).



**Fig. S4** Changes in relative content of 14 other metabolites in response to the Spm application under different conditions. Vertical bars indicate  $\pm$ SE of mean (n=4). Different letters above striated or gray columns indicate significant differences for a particular treatment (Control or +Spm) for comparison among normal condition, water stress, and heat stress; the asterisk "\*" indicates significant differences between the Control and the +Spm under one particular condition (normal condition, water stress, or heat stress) based on LSD (*P*<0.05).