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Genome-Wide Comprehensive Analysis of the GASA Gene Family in Peanut (*Arachis hypogaea* L.)

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[Abstract]

The GASA protein (Gibberellic acid-stimulated Arabidopsis) are family of small cysteine-rich peptides found in plants. These GASA gene family mainly involved in biotic/abiotic stress responses and plant development. Despite being present in a wide plant species, their action and functions still remain unclear. In this study, using the in-silico analysis method we identified 41 GASA genes in peanuts (*Arachis hypogaea* L.). Based on the phylogenetic analysis 41 GASA genes are classified in the four major clusters and subclades. Mainly, clusters IV and III comprise the majority of GASA genes 15 and 11 genes respectively, followed by cluster I and cluster II with 9 and 6 genes respectively. Additionally, based on in-silico analysis we predicted the post-transcriptional and post-translational changes of GASA proteins under abiotic stresses such as drought and salt stress would aid our understanding of the regulatory mechanisms. Hence, a further study is planned to evaluate the expression of these GASA genes under stress in different plant tissues to elucidate the possible functional role of GASA genes in peanut plants. These findings might offer insightful data for peanut advancement.

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