

# DROUGHT-INDUCED RESPONSE TO THE *STEVIA REBAUDIANA* SECONDARY METABOLITES



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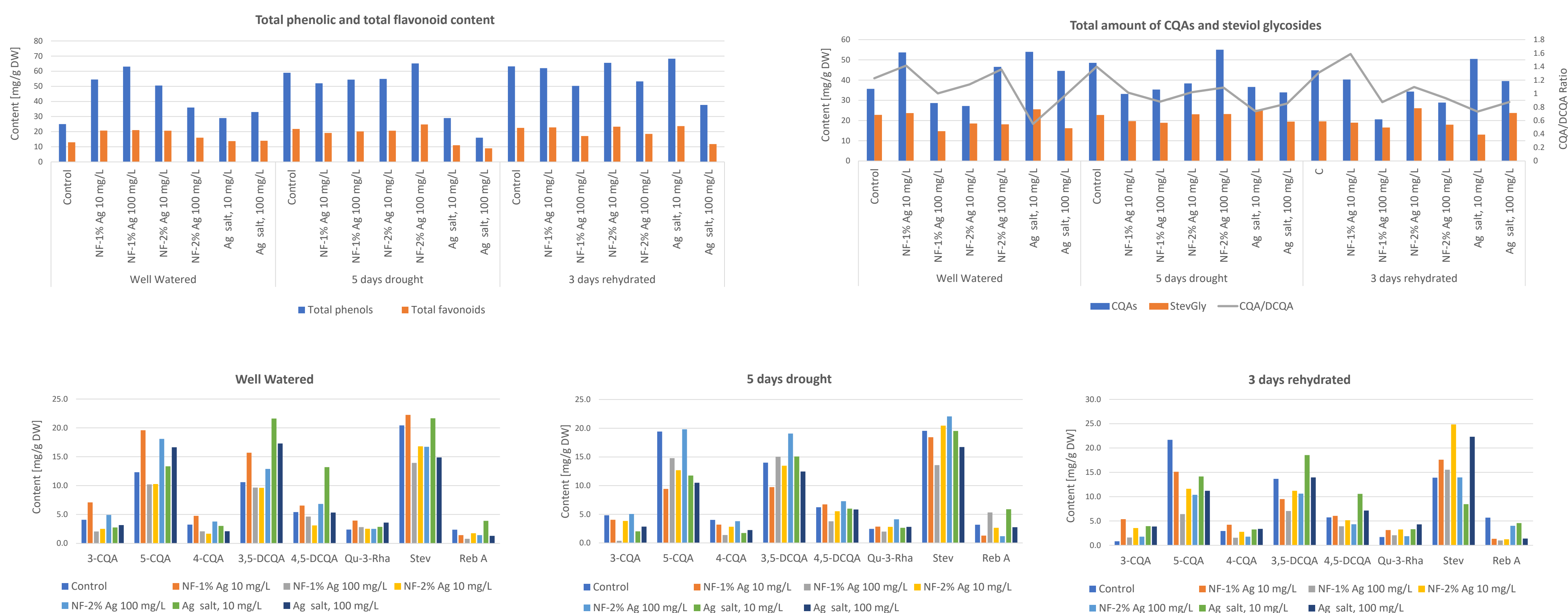
Over the past three decades, interest in medicinal plants has grown due to their cost-effectiveness and safety advantages over synthetic pharmaceutical products. Utilizing the identified natural components from *Stevia rebaudiana*, diterpene glycosides, such as stevioside and rebaudioside, the sweetest non-caloric sugar substitute, provides the basis for addressing contemporary global nutrition challenges, including the obesity epidemic. Using silver nanoparticles in plant biotechnology increases the resistance of many plant species to abiotic and biotic stress, and impacts the secondary metabolites content.



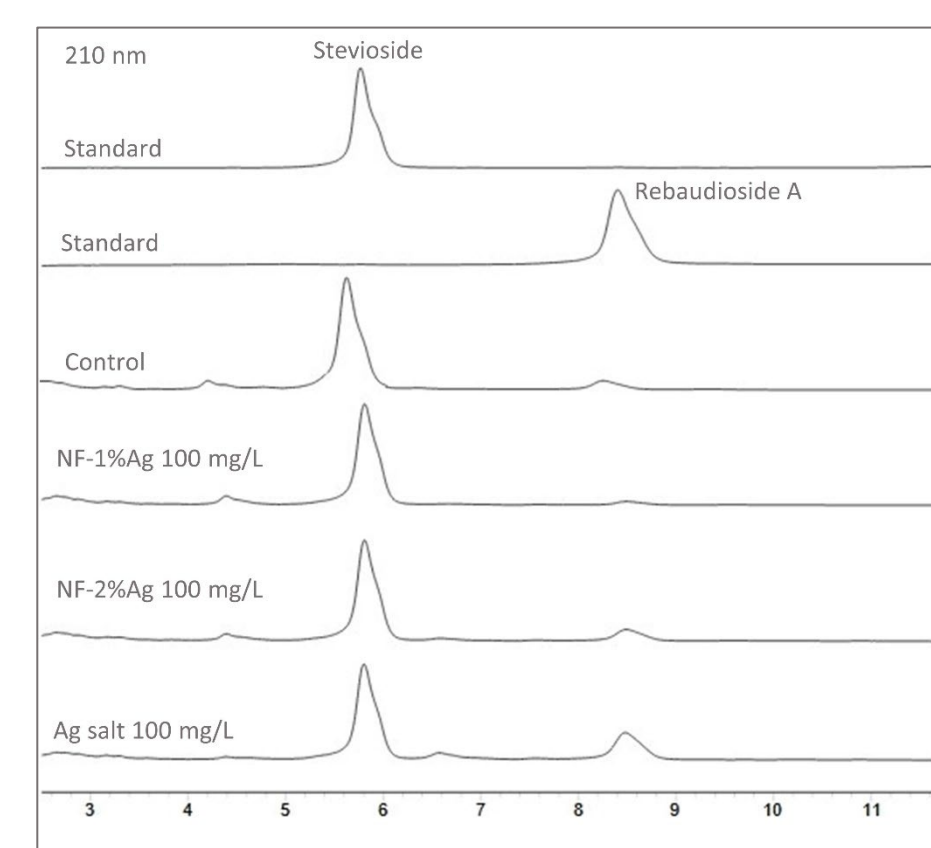
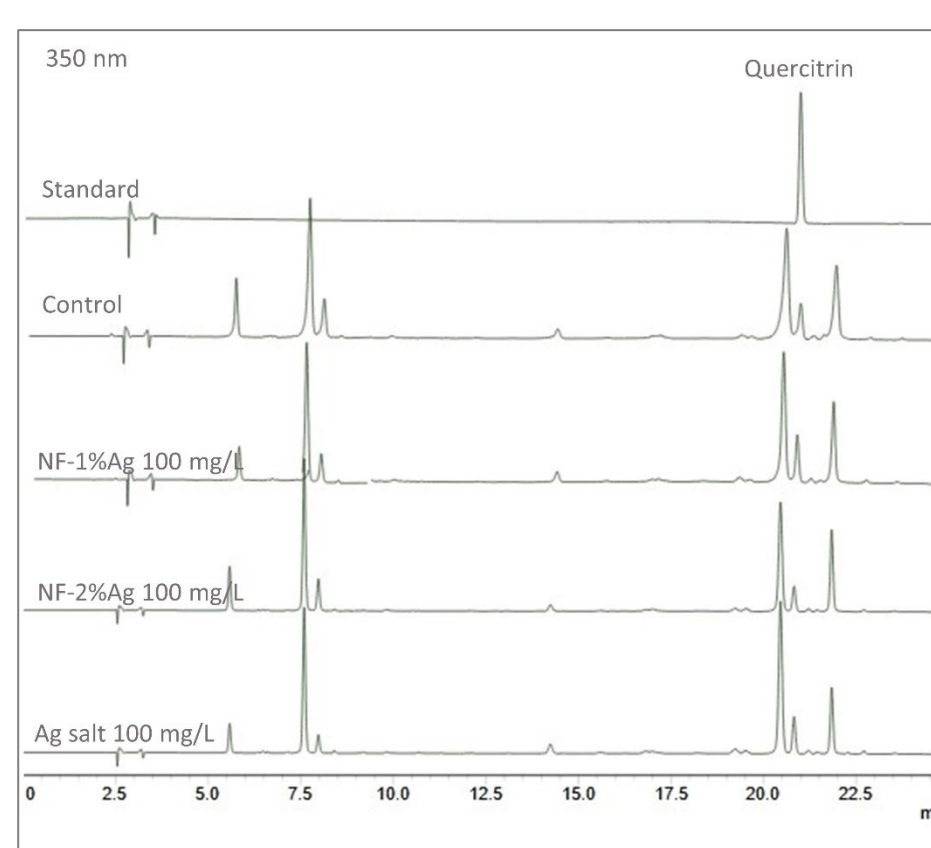
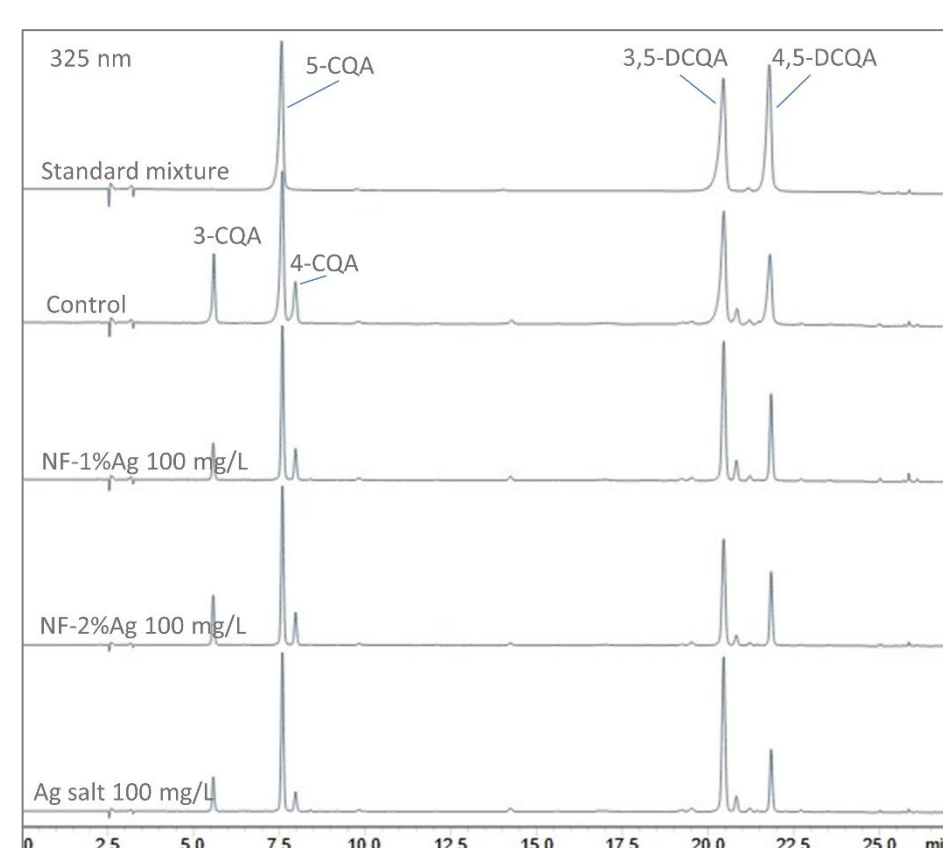
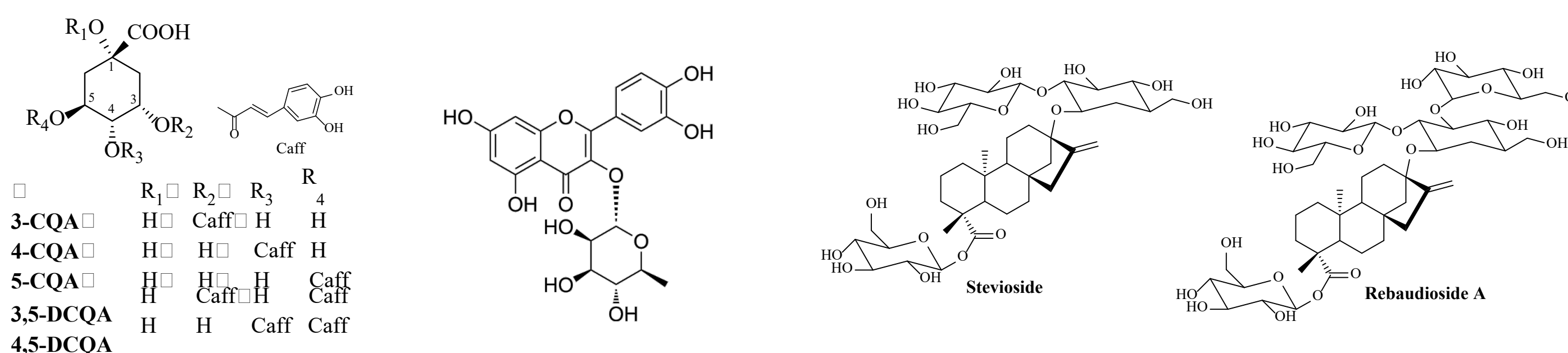
C 10 mg L<sup>-1</sup> NF-1%Ag 100 mg L<sup>-1</sup> NF-1%Ag 10 mg L<sup>-1</sup> NF-2%Ag 100 mg L<sup>-1</sup> NF-2%Ag

The aim of the study was *in vitro* *S. rebaudiana* propagation at MS nutrient medium supplemented with 10 and 100 mg L<sup>-1</sup> Ag-containing amino acid nanofibers, N,N'-Bis-(nicotinoil-L-valil)-1,6-diamino-hexane loaded with 1% (NF-1%Ag) and 2% (NF-2%Ag) colloidal Silver, and by aspartic acid derivatives Ag salts self-organized into nanofibers with monomeric molecular structures, containing one residue of L-Asp with one hydrophilic head which bonds one Ag ion (NF-Ag salt). Two months following, the *ex vitro* soil-adapted plants were studied for the effect of 5-day drought, followed by 3-day rehydration on the total phenolic, total flavonoid, stevioside, rebaudioside A, mono- (CQA) and dicaffeoylquinic (DCQA) acids and quercetin-3-O-rhamnoside content.

## Effect of drought and rehydration on the content of secondary metabolites in *ex vitro* soil-adapted *Stevia rebaudiana*



## Quantitative determination of mono- and dicaffeoylquinic acids, quercetin-3-O-rhamnoside (quercitrin) and steviol glycosides



HPLC: Force C18 (150x4.6mm, 3μm); temp. 40°C; 325 (CQAs) and 350 (quercitrin) nm; flow rate - 0.6 mL/min; mobile phase: (A) 0.1% (v/v) HCOOH in H<sub>2</sub>O and (B) CH<sub>3</sub>CN in gradient mode; running time - 35 min

HPLC: Inertsil NH2 (150x4.0 mm, 3μm); temp. 40°C; 210 nm; flow rate - 0.8 mL/min; mobile phase CH<sub>3</sub>CN:H<sub>2</sub>O (4:1, v/v) in isocratic mode for 30 min