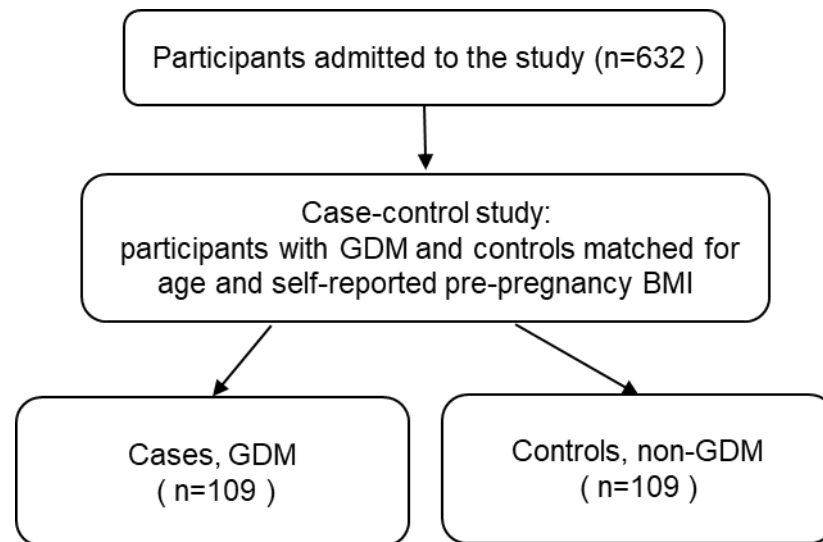
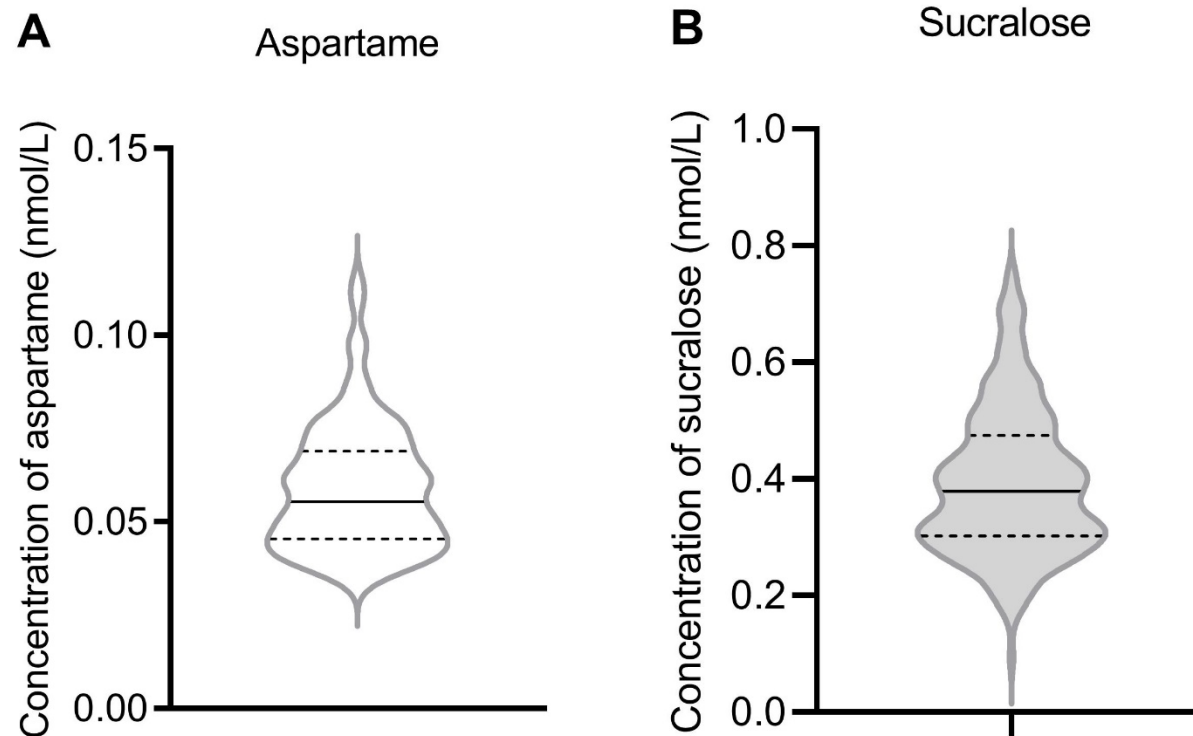


Supplementary Figure S1.



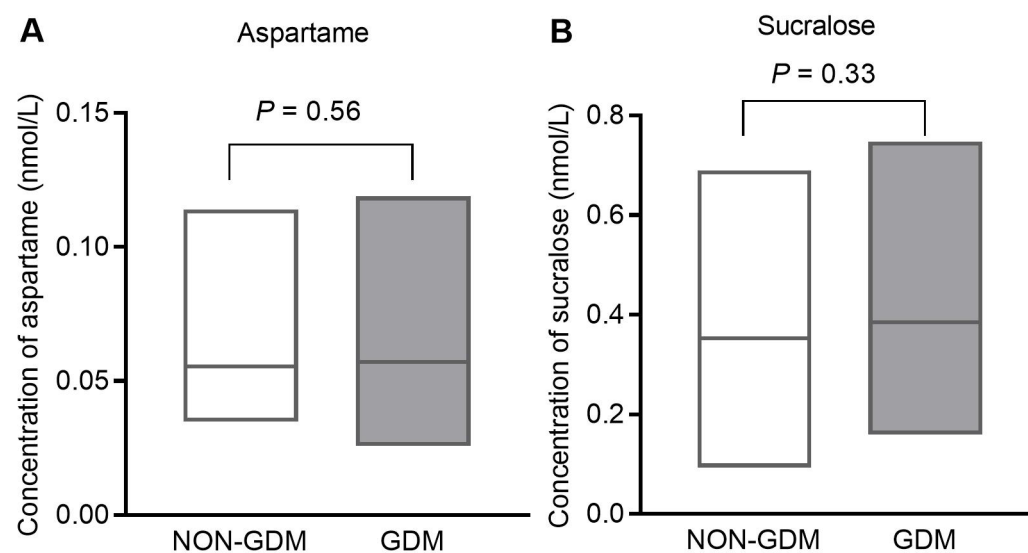
**Supplementary Figure S1.** Flow diagram for the enrollment of the study. All participants with GDM were selected as cases from 632 pregnant women, except for 4 women missing blood samples. The final analysis included 109 cases and 109 controls matched for age and self-reported pre-pregnancy BMI. Abbreviation: GDM, Gestational diabetes mellitus.

Supplementary Figure S2.



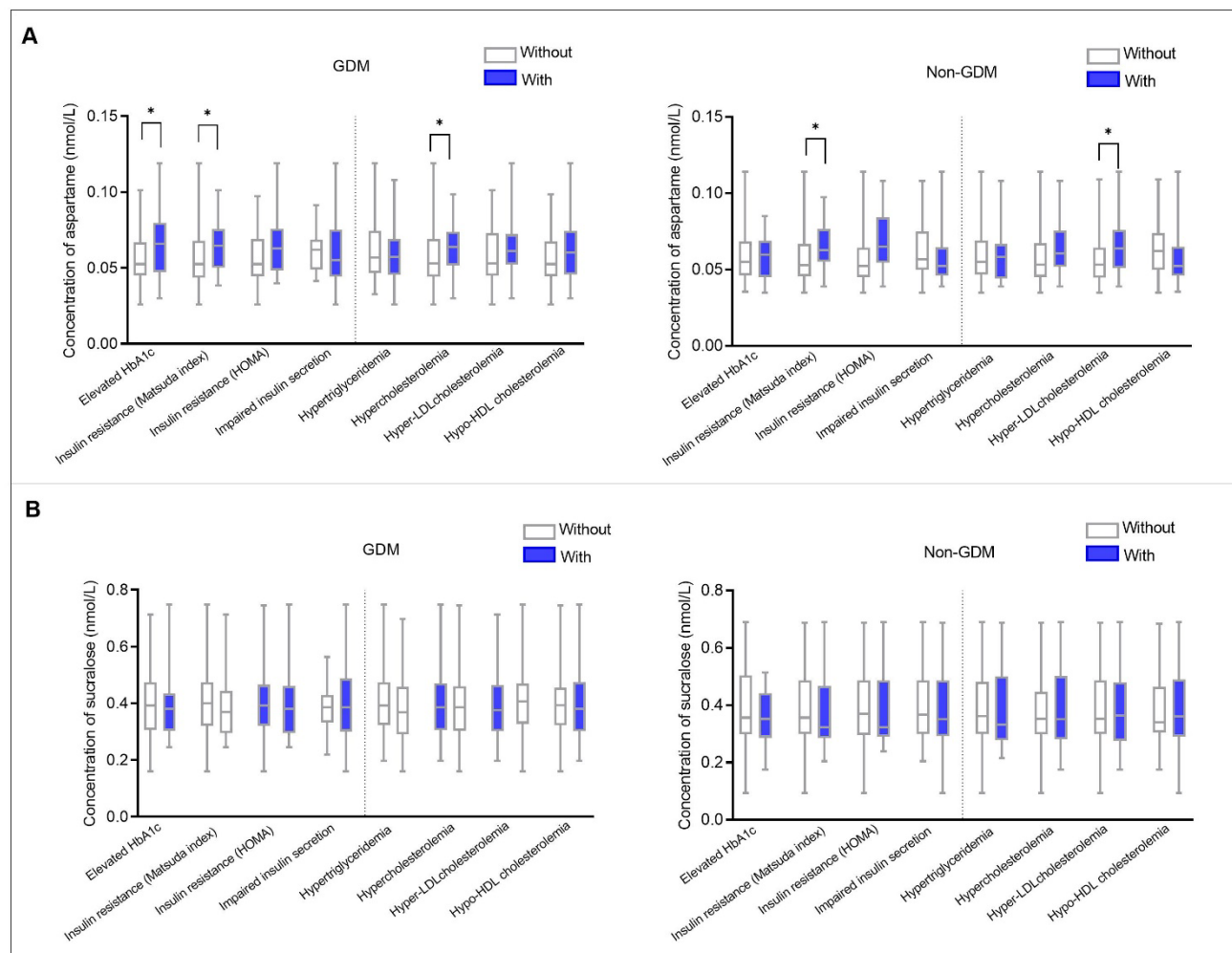
**Supplementary Figure S2.** Violin plots presenting the distributions of serum aspartame (A) and sucralose (B) levels among all participants during pregnancy. The median levels of serum aspartame and sucralose were 0.0563 (0.0459-0.0692) nmol/L and 0.3790 (0.3020-0.4740) nmol/L, respectively.

Supplementary Figure S3.



**Supplementary Figure S3.** Box plot comparing serum aspartame (A) and sucralose (B) levels among participants with and without GDM during pregnancy. Wilcoxon rank-sum tests were used to compare serum aspartame and sucralose levels among participants with and without GDM. *P* values less than 0.05 were considered statistically significant.

Supplementary Figure S4.



**Supplementary Figure S4.** Box plot comparing serum aspartame (A) and sucralose (B) levels among participants with and without abnormal glucose metabolism/dyslipidemia in the GDM and non-GDM groups. The upper panel (A) compares serum aspartame levels among participants with and without abnormal glucose and dyslipidemia in the GDM and non-GDM groups. The lower panel (B) is for comparing serum sucralose levels among participants with and without abnormal glucose and dyslipidemia in the GDM and non-GDM groups.

Abnormal glucose metabolism during pregnancy included elevated HbA1c, insulin resistance, and impaired insulin secretion. Elevated HbA1c was defined as  $\geq 5.1\%$  (the upper tertile of HbA1c). Insulin resistance was defined as  $\leq 8.00$  (the upper tertile of Matsuda insulin sensitivity index derived from OGTT during pregnancy) or  $\geq 2.4$  (the lower tertile of HOMA-IR). Impaired insulin secretion was defined as  $\leq 107.10$  (the lower tertile of HOMA- $\beta$  index).

Dyslipidemia during pregnancy included hypertri-glyceridemia, hypercholesterolemia, hyper- LDL cholesterolemia, and hypo-HDL cholesterolemia. Hypertriglyceridemia was defined as  $\geq 1.9$  mmol/L (the upper tertile of triglycerides). Hypercholesterolemia was defined as  $\geq 5.73$  mmol/L (the upper tertile of total cholesterol). Hyper-LDL cholesterolemia was defined as  $\geq 3.08$  mmol/L (the upper tertile of LDL-cholesterol). Hypo-HDL cholesterolemia was defined as  $\leq 2.89$  mmol/L (the lower tertile of HDL-cholesterol).

Wilcoxon rank-sum tests were used to compare serum aspartame and sucralose levels with and without abnormal glucose and dyslipidemia among all participants and those with and without GDM, respectively. *P* values less than 0.05 (asterisk superscript) were considered statistically significant.