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Supplementary Material

Article

Facile Fabrication of a Selective Poly(caffeic acid)@MWCNT-$Ni(OH)_2$ Hybrid Nanomaterial and Its Application as a Non-Enzymatic Glucose Sensor

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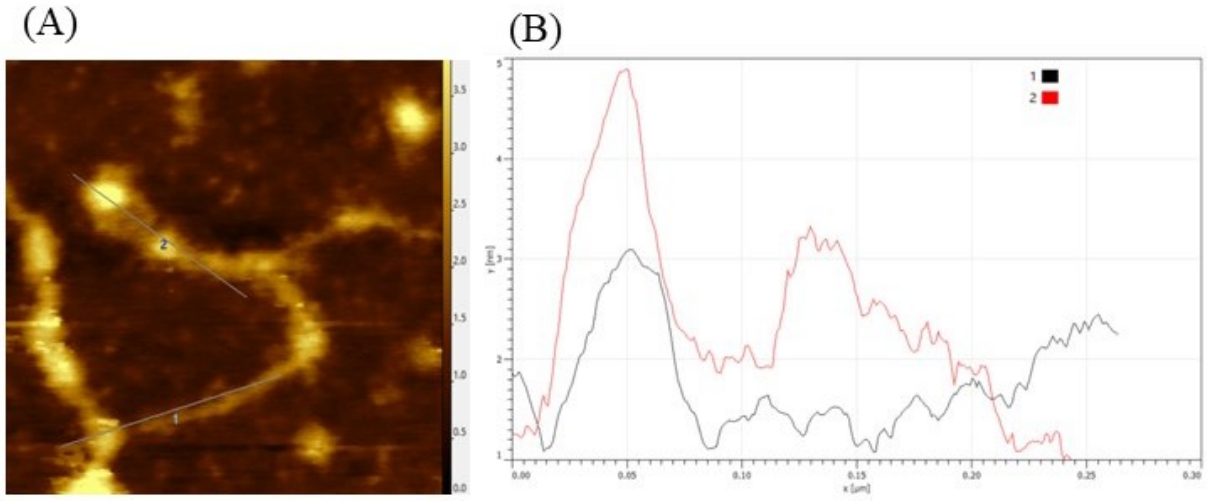

Figure S1. (**A**) 2D AFM image and (**B**) surface profile analysis of PCA@MWCNT-$Ni(OH)_2$.

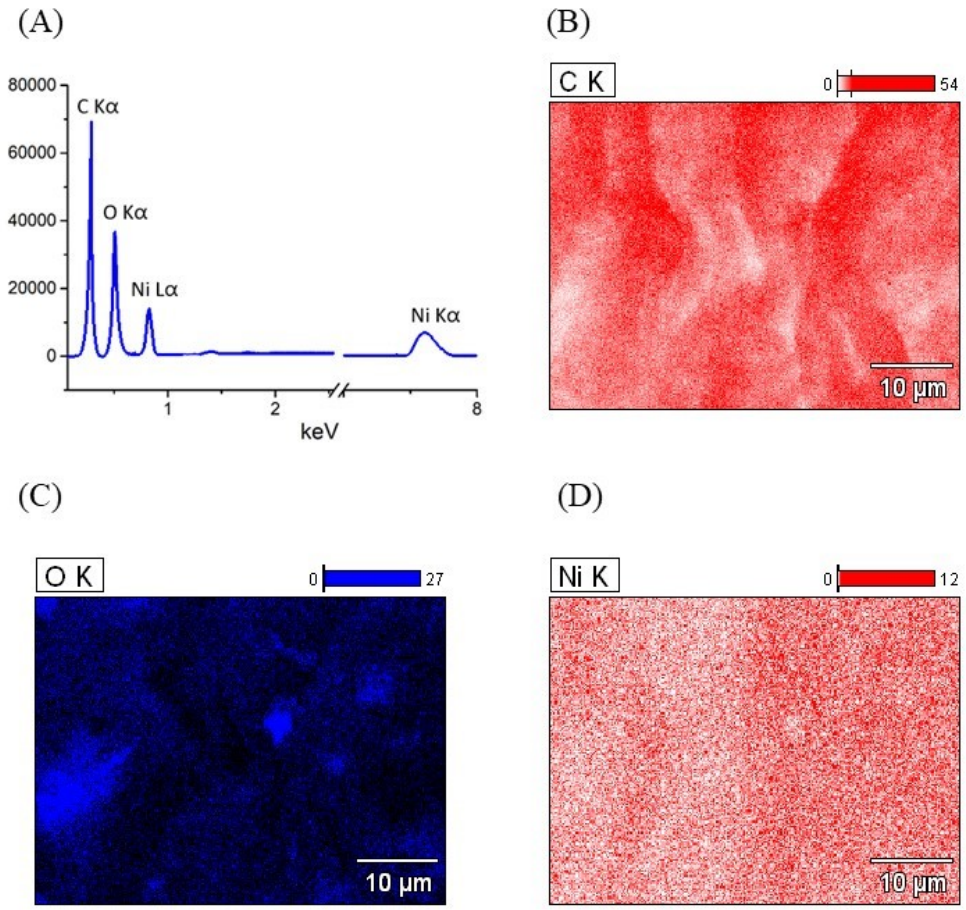

Figure S2. EDS mapping spectrum of PCA@MWCNT-Ni(OH)$_2$ (**A**) and SEM micrographs of elemental carbon (**B**), oxygen (**C**), and nickel (**D**).

Table S1. EDS analysis results for PCA@MWCNT-Ni(OH)$_2$ material.

Element	Content of element by weight (%)
C	69.76
O	26.46
Ni	3.78

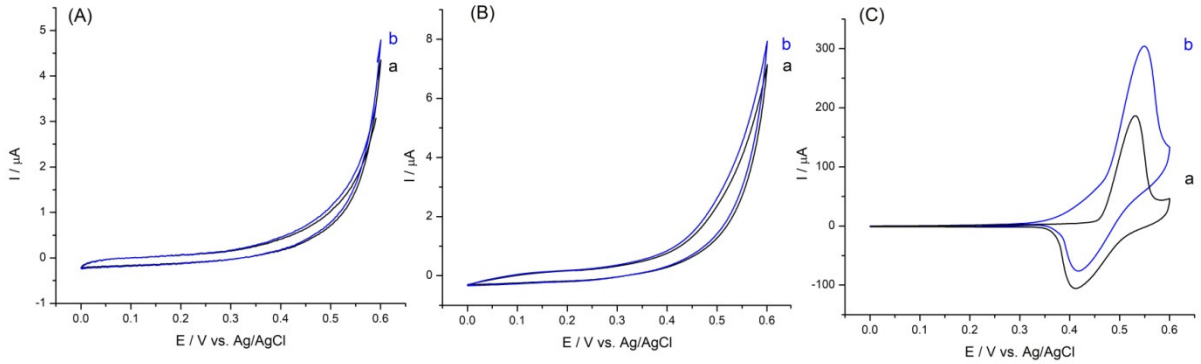

Figure S3. CVs of 0.1 M NaOH solution at GC/MWCNT (**A**), GC/PCA@MWCNT (**B**), GC/PCA@MWCNT-Ni(OH)$_2$ (**C**) in the absence (a) and presence (b) of 1 mM glucose at 10 mV s^{-1}.

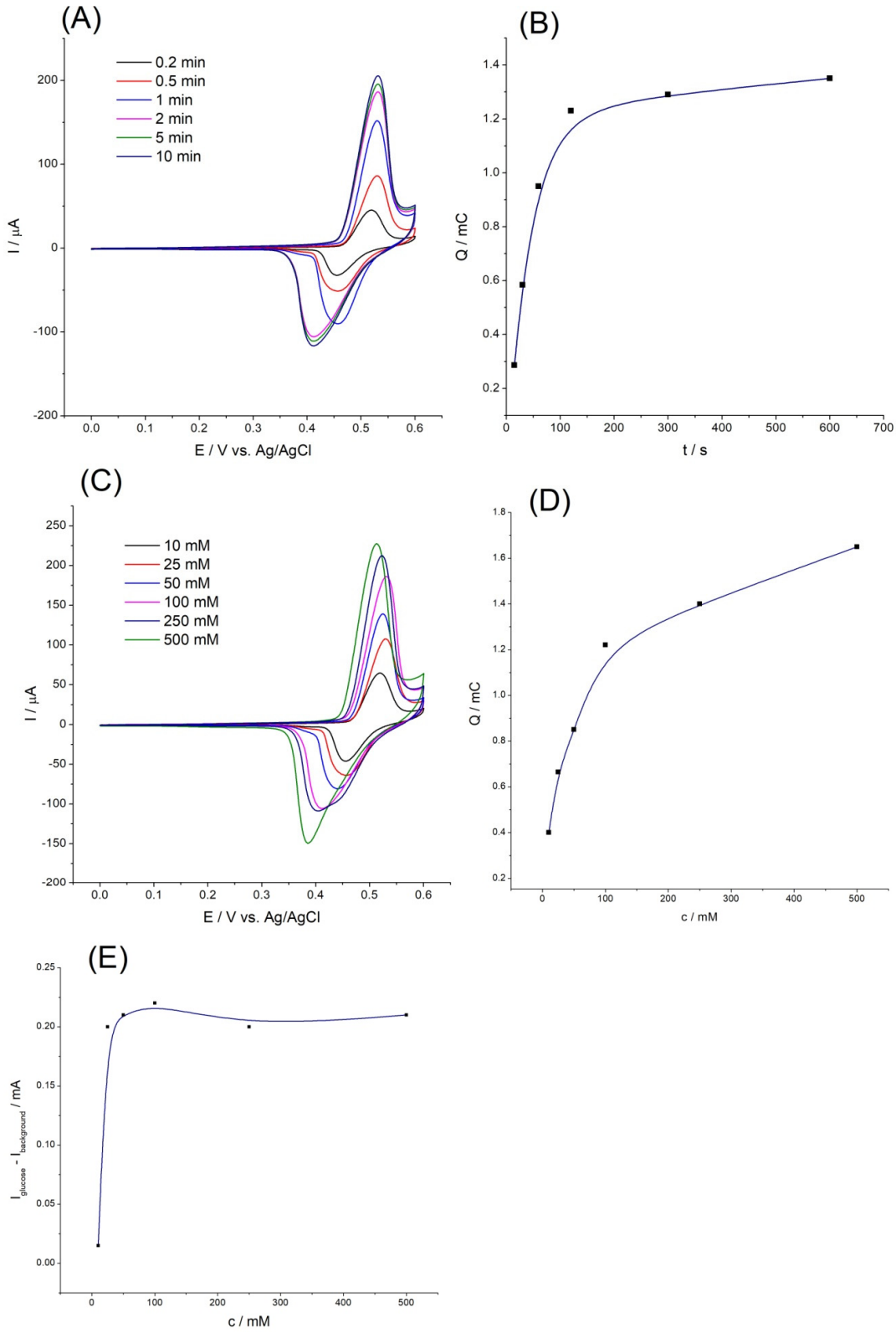

Figure S4. Change in GC/PCA@MWCNT-Ni(OH)$_2$ redox response depending on the complexation time of $NiSO_4$ used in the fabrication of GC/PCA@MWCNT-Ni(OH)$_2$ (concentration of $NiSO_4$ was 50 mM) (**A**). Relationship between anodic peak charge and time of accumulation (**B**). Change in GC/PCA@MWCNT-Ni(OH)$_2$ redox response depending on the concentration of $NiSO_4$ used in the fabrication of GC/PCA@MWCNT-Ni(OH)$_2$ (time of accumulation was 2 min) (**C**). Relationship

between anodic peak charge and $NiSO_4$ concentration (**D**). Value of $I_{glucose} - I_{background}$ recorded at GC/PCA@MWCNT-Ni(OH)$_2$ prepared using various $NiSO_4$ concentrations (**E**).

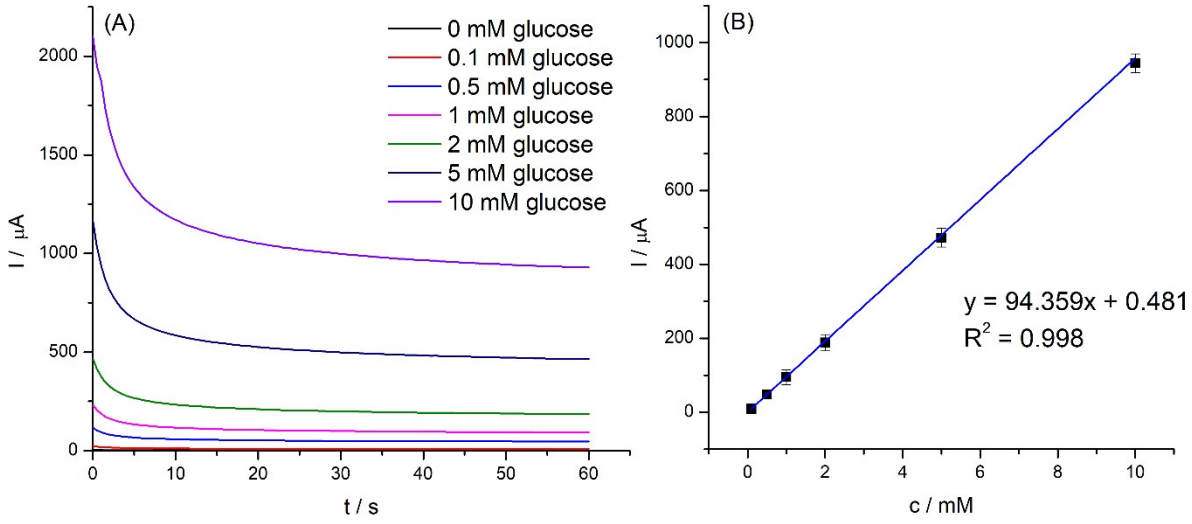

Figure S5. Chronoamperometric responses of GC/PCA@MWCNT-Ni(OH)$_2$ for various glucose concentrations (100 μM − 10 mM) in 0.1 M NaOH at +0.5 V (**A**); the corresponding calibration curve of current response vs. glucose concentration (**B**) (n = 3).

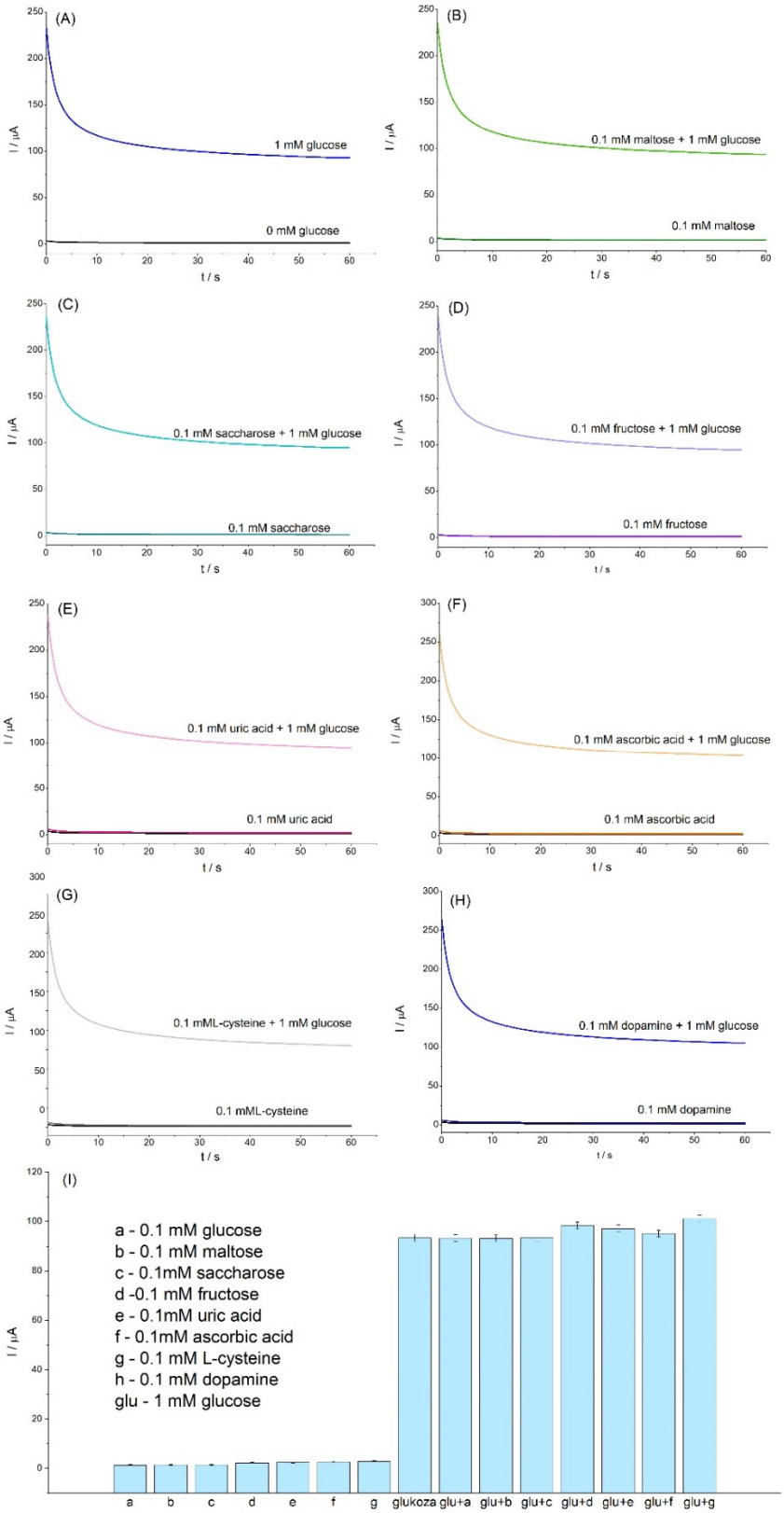

Figure S6. GC/PCA@MWCNT-Ni(OH)$_2$ sensor's amperometric response to 1 mM glucose (**A**) and individual interferents (0.1 mM): maltose (**B**), saccharose (**C**), fructose (**D**), uric acid (**E**), ascorbic acid (**F**), L-cysteine (**G**), dopamine (**H**), in the absence and presence of 1 mM glucose in 0.1 M NaOH solution at +0.5 V. (**I**) comparison of the relative response for the tested interferents against glucose.

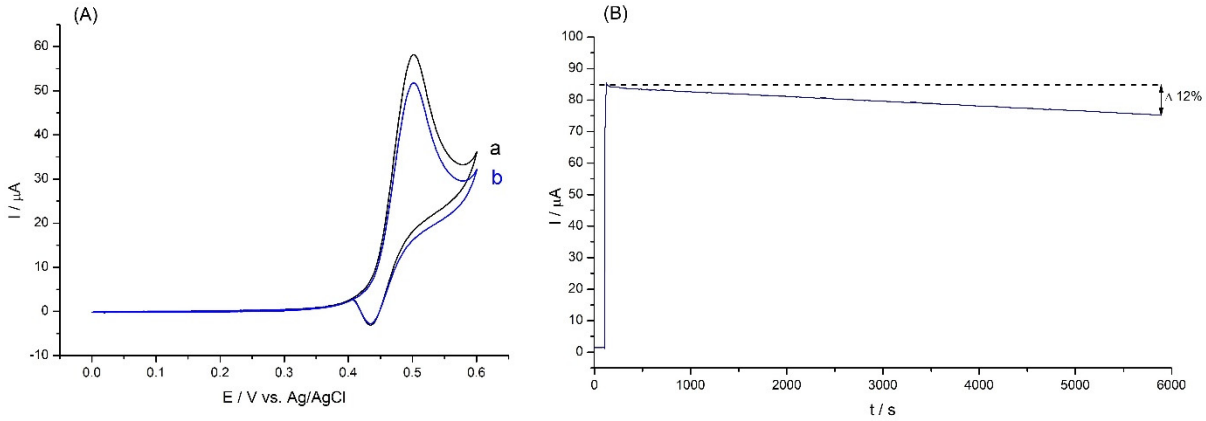

Figure S7. CV curves recorded in 1 mM glucose at the first measurement (a) and after 200 consecutive measurements (b) (**A**); chronoamperometric response of the GC/PCA@MWCNT-Ni(OH)$_2$ electrode after 6000 s at +0.5 V (**B**).

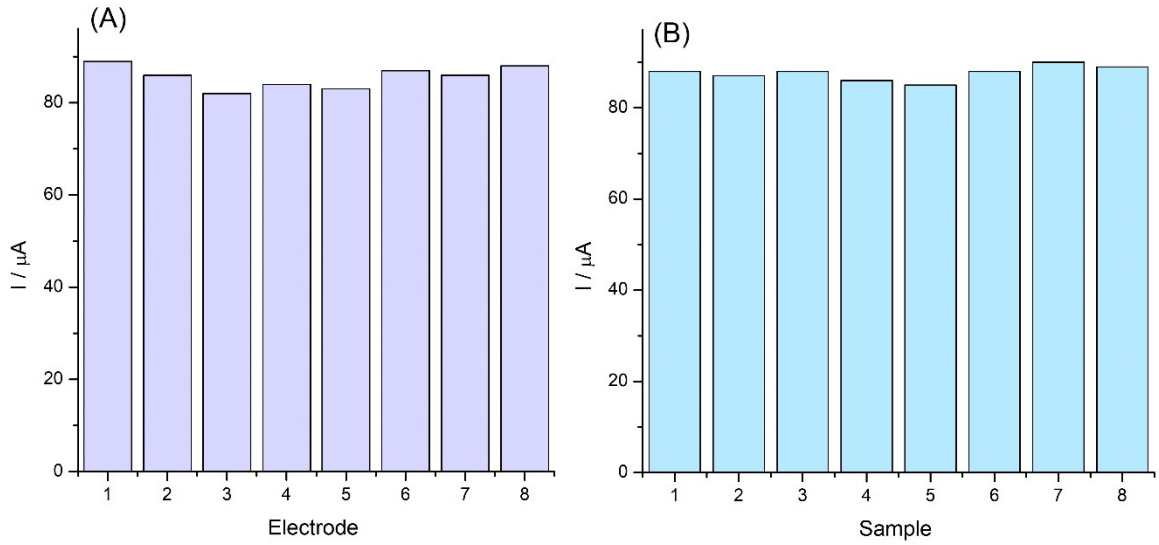

Figure S8. Reproducibility of eight electrodes for the detection of 1 mM glucose (**A**); repeatability of a single electrode for detection in eight samples containing 1 mM glucose (**B**).