SUPPLEMENTARY FILES

Hierarchical Porous Carbon Cobalt Nanocomposites based Sensor for Fructose

Hassan H. Hammud[1*], Nusaybah Alotaibi[1], Nasreen Al Otaibi[1], Abdullah Aljaafari[2], Faheem Ahmed[2], Ameer Azam[3], Thirumurugan Prakasam[4]

[1] Department of Chemistry, College of Science, King Faisal University, P.O Box 400 Al-Ahsa 31982, Saudi Arabia. nalotaibi@kfu.edu.sa (N.A.); nbalotaibi@kfu.edu.sa (N.A.O.)

[2] Department of Physics, College of Science, King Faisal University, P.O Box 400 Al-Ahsa 31982, Saudi Arabia. aaljaafari@kfu.edu.sa (A.Al.); fahmed@kfu.edu.sa (F.A.)

[3] Department of Applied Physics, Z.H. College of Engineering and Technology, Aligarh Muslim University, Aligarh, Uttar Pradesh 202002, India. azam2288@gmail.com (A.Az.)

[4] Chemistry Program, New York University Abu Dhabi (NYUAD), Abu Dhabi United Arab Emirates. tp42@nyu.edu (T.P.)

* Correspondence: hhammoud@kfu.edu.sa (H.H.H.)

Table S1. Specific capacitance of HPC-Co and HPC-CoO compared with other materials

Material	Specific Capacitance (F/g)	Retentivity%	Reference
HPC-Co	47.0	76.6	This Study
HPC-CoO	28.2	87.9	This Study
Cobalt-oxide/carbon composites	567 F/g	82.0	[66]
Cobalt carbon composite	144.5	96.5	[67]
Cobalt carbon composite	205.4 F/g	76.7	[68]
cobalt coal based activated carbon composite	615 F/g		[69]

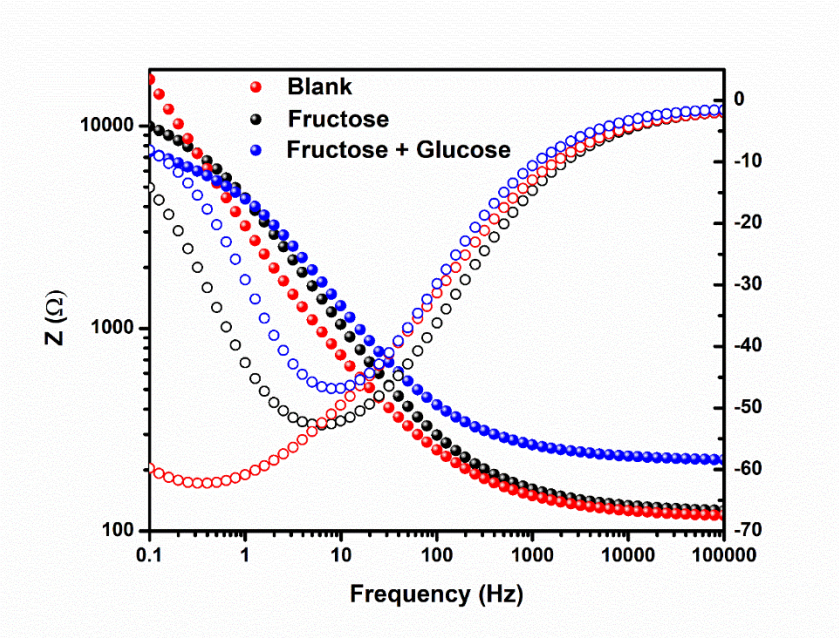

Figure S1. Bodes plot, complex impedance Z Ω measurement at 1 Hz frequency was used to study the interference effect of glucose using HPC-CoO electrode.

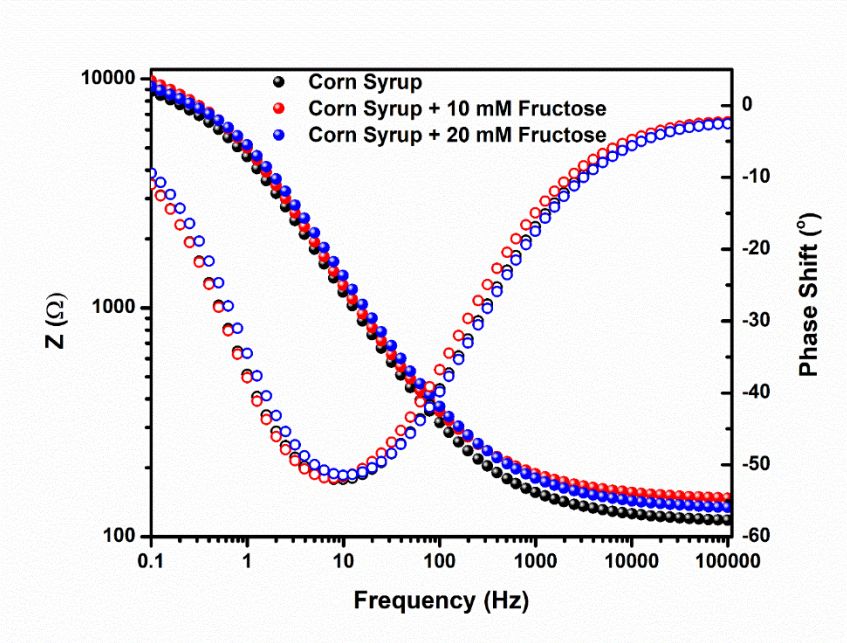

Figure S2. Complex impedance Z Ω measurement at 1 Hz frequency was used to calculate the % of fructose in a local corn syrup sample, using HPC-CoO electrode

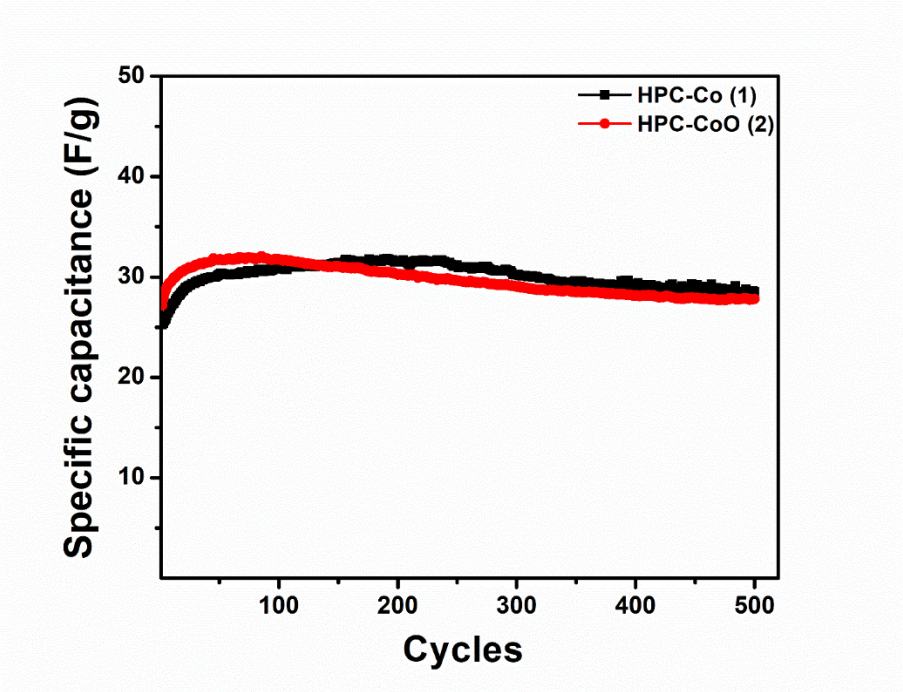

Figure S3. Long-term cycling of HPC-Co (1) and HPC-CoO (2) electrodes revealing minor decrease in the specific capacitance after 500 cycles.