

Table S1- Values of overpotential values for HER of fabricated Ni electrodes from acetate bath at pH 1.47 and deposition potential -1.3 V

pH 1.47, pot -1.3 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	323	160	116.19
B _L	379	280	114.37
B _{II}	280	108	117.36

Table S2- Values of overpotential values for HER of fabricated Ni electrodes from acetate bath at pH 2.5 and deposition potential -1.4 V

pH 2.5, pot -1.4 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	316	149	115.69
B _L	291	102	117.38
B _{II}	298	132	116.84

Table S3- Values of overpotential values for HER of fabricated Ni electrodes from acetate bath at pH 4.4 and deposition potential -1.1 V

pH 4.4, pot -1.1 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	330	133	119.01
B _L	353	228	115.39
B _{II}	330	192	116.47

Table S4- Values of overpotential values for HER of fabricated Ni electrodes from acetate bath at pH 4.4 and deposition potential -1.2 V

pH 4,4, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	367	252	116.46
B _L	335	148	113.57
B _{II}	325	98	115.43

Table S5- Values of overpotential values for HER of fabricated Ni electrodes from borate bath at pH 1.47 and deposition potential -1.1 V

pH 1.47, pot -1.1 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	391	226	114.18
B _L	384	208	115.52
B _{II}	380	182	116.34

Table S6- Values of overpotential values for HER of fabricated Ni electrodes from borate bath at pH 1.47 and deposition potential -1.2 V

pH 1.47, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	369	206	115.77
B _L	373	203	113.81
B _{II}	367	160	116.9

Table S7- Values of overpotential values for HER of fabricated Ni electrodes from borate bath at pH 2.5 and deposition potential -1.2 V

pH 2.5, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	319	155	116.85
B _L	342	147	115.39
B _{II}	354	178	111.06

Table S8- Values of overpotential values for HER of fabricated Ni electrodes from borate bath at pH 3.7 and deposition potential -1.2 V			
pH 3.7, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	358	199	117.17
B _I	360	180	112.95
B _{II}	373	180	112.71

Table S9- Values of overpotential values for HER of fabricated Ni electrodes from citrate bath at pH 1.47 and deposition potential -1.2 V			
pH 1.47, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	262	121	110.64
B _I	231	118	118.46
B _{II}	245	123	114.13

Table S10- Values of overpotential values for HER of fabricated Ni electrodes from citrate bath at pH 2.5 and deposition potential -1.2 V			
pH 2.5, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	245	104	117.79
B _I	277	115	116.61
B _{II}	279	104	107.43

Table S11- Values of overpotential values for HER of fabricated Ni electrodes from citrate bath at pH 3.7 and deposition potential -1.2 V			
pH 3.7, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	345	145	111.82
B _I	304	122	115.05
B _{II}	365	139	113.68

Table S12- Values of overpotential values for HER of fabricated Ni electrodes from citrate bath at pH 4.4 and deposition potential -1.2 V			
pH 4.4, pot -1.2 V	η_{10} (mV)	Tafel slope (mV.dec ⁻¹)	Contact angle
Without B	316	117	109.21
B _I	354	150	112.28
B _{II}	294	106	115.70