SUPPLEMENTARY MATERIAL

Table S1. ANOVA of the second order multiple linear regression for the antioxidant capacity

Source	Sum of squares	Degree of freedom	Variance MS	F-Test	p-Value
Model	4102.01	2	2051.0	12.21	0.0001
Residual	5373.46	32	167.921		
Total (Corr.)	9475.47	34			

R^2 = 62.40

Table S2. Second-order model regression coefficients for total polyphenol content

Term	Coefficient
Constant	130.614
A: MoR	-6.39756
B: % Added Water	-3.15866
AA	-6.31696
AB	0.0913333
BB	0.0370936

Note: MoR = Molar ratio of glucose per 1 mol of choline chloride

Table S3. ANOVA of the complete experimental design for the total polyphenol content

Source	Sum of squares	Degree of freedom	Variance MS	F-Test	p-Value
A: MoR	3700.06	1	3700.06	2.57	0.1193
B: % Added Water	2198.41	1	2198.41	1.53	0.2260
AA	57415.6	1	57415.6	39.91	0.0000
AB	499.359	1	499.359	0.35	0.5602
BB	8566.4	1	8566.4	5.95	0.0208
Total Error	43163.4	30	1438.78		
Total (corr.)	109269.	35			

Note: R^2 = 60.5; MoR = Molar ratio of glucose per 1 mol of choline chloride

Table S4. Second-order model regression coefficients for antioxidant capacity

Term	Coefficient
Constant	83.4455
A: MoR	30.2858
B: % Added Water	-2.24408
AA	-13.2041
AB	-0.248006
BB	0.0327891

Note: MoR = Molar ratio of glucose per 1 mol of choline chloride

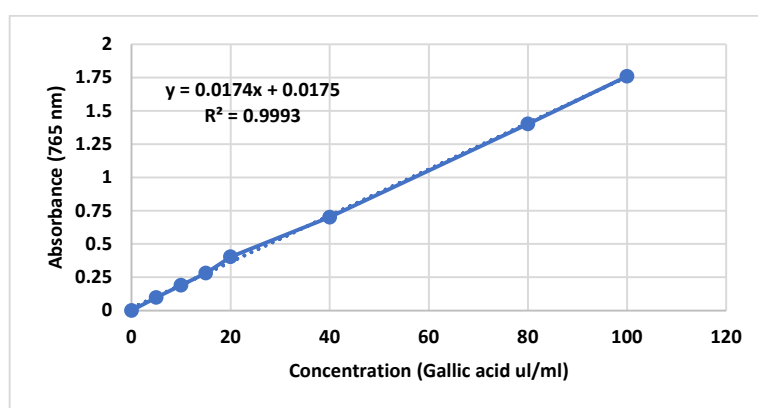**Table S5.** ANOVA of the complete experimental design for the antioxidant capacity

Source	Sum of squares	Degree of freedom	Variance MS	F-Test	p-Value
A: MoR	2385.77	1	2385.77	21.40	0.0001
B: % Added Water	0.510349	1	0.510349	0.00	0.9465
AA	231.363	1	231.363	2.08	0.1591
AB	105.671	1	105.671	0.95	0.3374
BB	3652.38	1	3652.38	32.76	0.0000
Total Error	3679.18	33	111.49		
Total (corr.)	11056.9	38			

Note: R^2 = 66.72; MoR = Molar ratio of glucose per 1 mol of choline chloride

Tabla S6. First order model ANOVA for individual polyphenols of the first experimental design for the optimization of the NADES conditions

Polifenol	Valor-p	R^2
Protocatechuic Ac.	0.002	54.84
Catechin	1.000	0.00
Chlorogenic Ac.	0.001	60.47
Cinnamic Ac.	1.000	0.00
Rutin	0.000	66.10
Quercetin + Luteolin	0.018	45.35
Kaempferol	0.000	66.60
Vanillin	0.5850	4.97
Diosmin + Hesperidin	0.0492	24.94
Neohesperidin	0.2232	13.31
Naringenin	0.000	66.65
Apigenin	0.000	66.44
Diosmetin*	-	-
Ferulic Ac.	0.0523	24.49

*This polyphenol presented concentrations equal to zero in all the experiments of the first experimental design

Figure S1. Calibration curve for the evaluation of the total content of polyphenols in habanero pepper leaf extracts
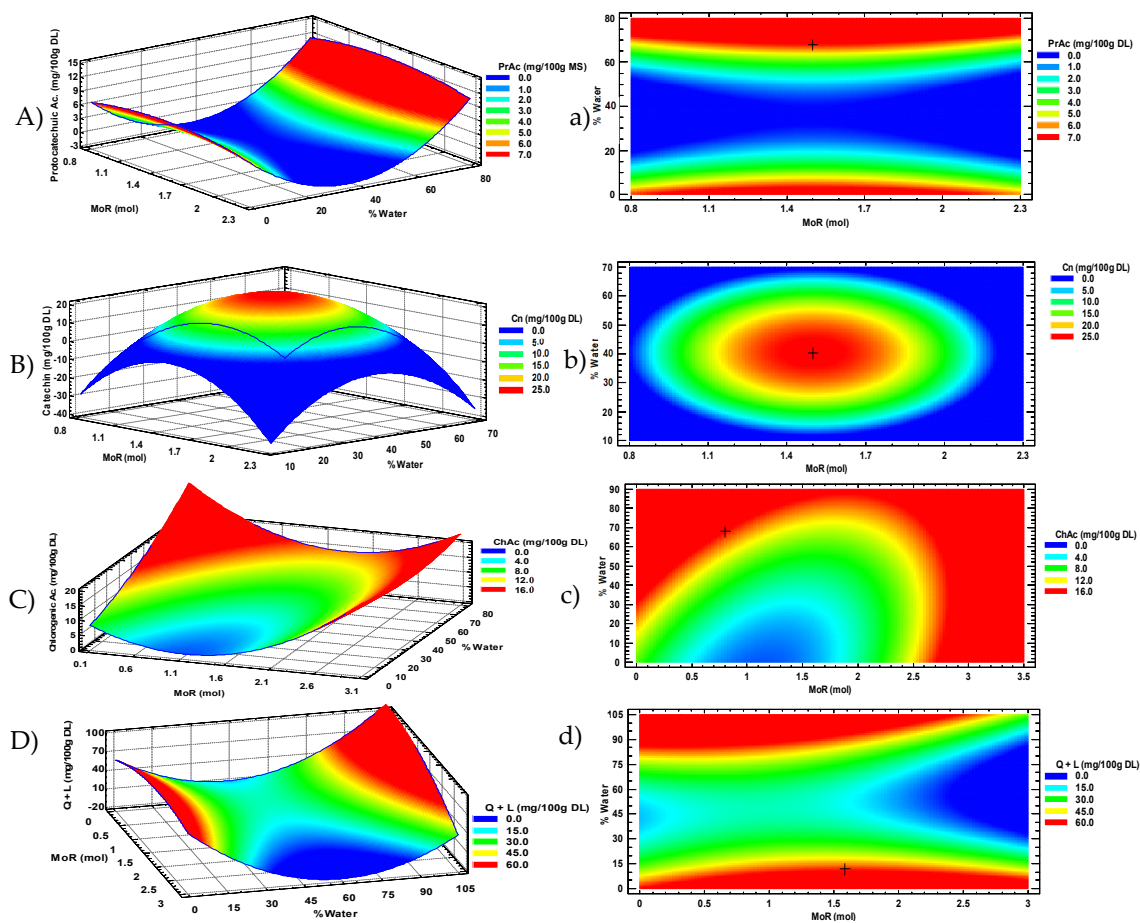
Figure S2. Response surface (Capital letter) and contour plot (Lowercase letter) of Protocatechuic acid (A,a); Catechin (B, b); Chlorogenic acid (C, c); Quercetin + Lutein (D, d). Abbreviations: PrAc = Protocatechuic acid; Cn = Catechin; ChAc = Chlorogenic acid; Q + L = Quercetin + Luteolin
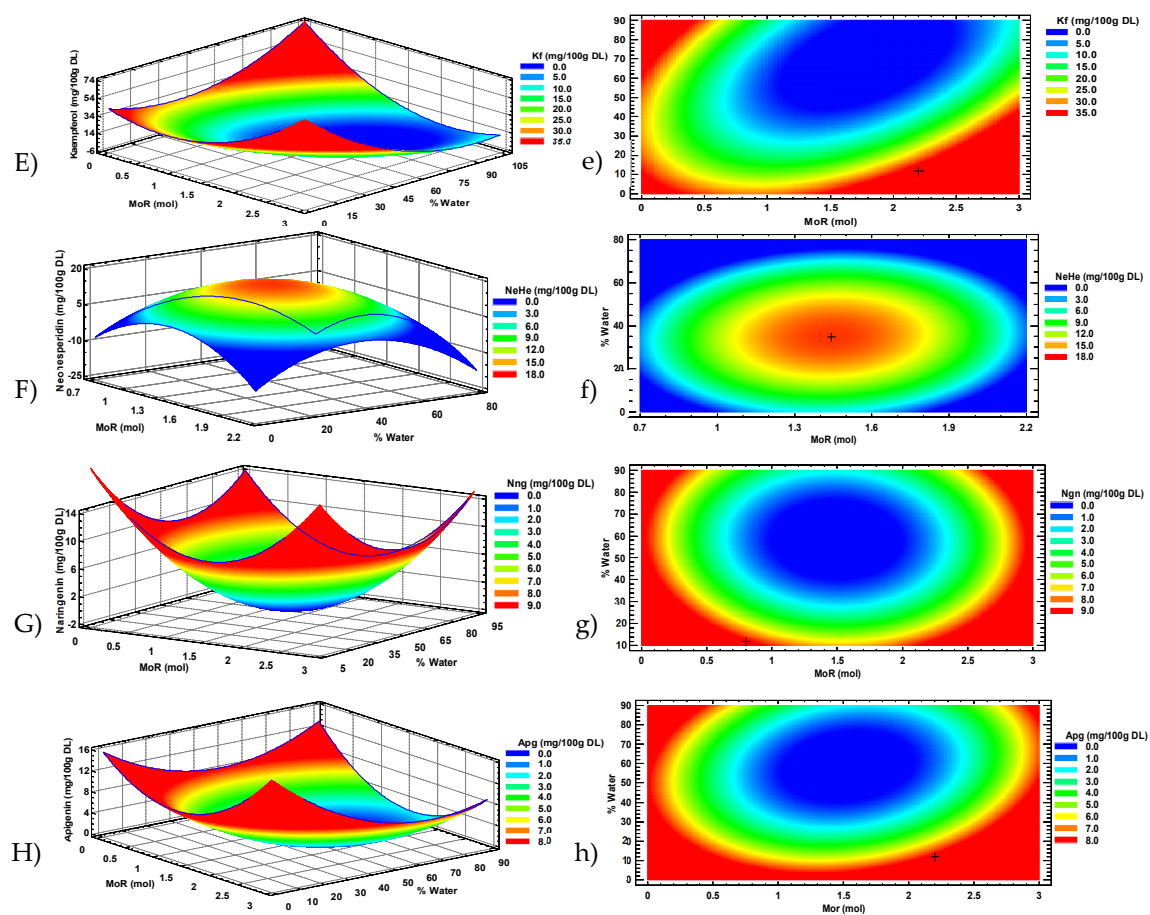
Figure S3. Response surface (Capital letter) and contour plot (Lowercase letter) of Kaempferol (E,e); Neohesperidin (F, f); Naringenin (G, g); Apigenin (H, h). Abbreviations: Kf = Kaempferol; NeHe = Neohesperidin; Ngn = Naringenin; Apn = Apigenin
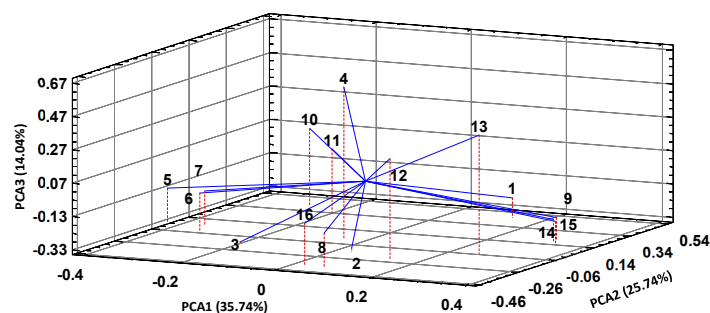
Figure S4. Principal component analysis (PCA) with 3 components (PCA1, PCA2 and PCA3) for the total polyphenol content, antioxidant capacity, and polyphenol profile of habanero pepper leaf extracts obtained from the experimental design for composition optimization of a Natural Deep Eutectic Solvent using a sonic probe. Numeration: 1 = Total polyphenol content; 2 = Antioxidant capacity; 3 = Protocatechuic acid; 4 = Catechin; 5 = Chlorogenic acid; 6 = Cinnamic acid; 7 = Rutin; 8 = Quercetin + Luteolin; 9 = Kaempferol; 10 = Ferulic acid; 11 = Vanillin; 12 = Diosmin + Hesperidin; 13 = Neohesperidin; 14 = Naringenin; 15 = Apigenin; 16 = Diosmetin.