

Effect of Encapsulated Phenolic Compounds of Cocoa on Growth of Lactic Acid Bacteria and Antioxidant Activity of Fortified Drinking Yogurt

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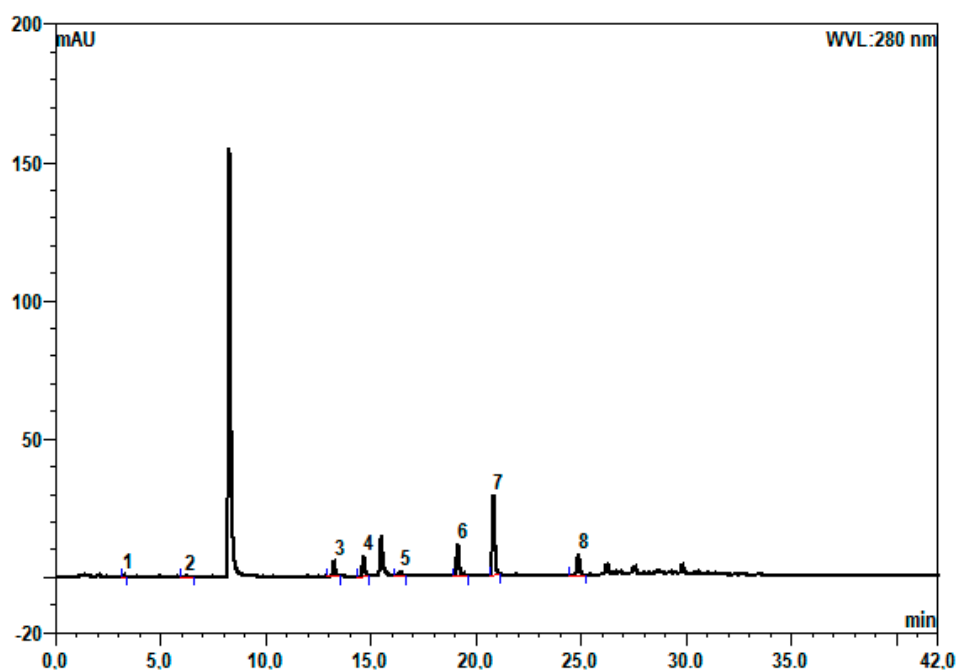


Figure S1. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in ACTICOA cocoa powder sample. Peak labels: 1 - gallic acid, 2 - protocatechuic acid, 3 - caffeic acid aspartate, 4 - (+)-catechin, 5 - *p*-coumaric acid aspartate, 6 - procyanidin B2, 7 - (-)-epicatechin, 8 - procyanidin C1.

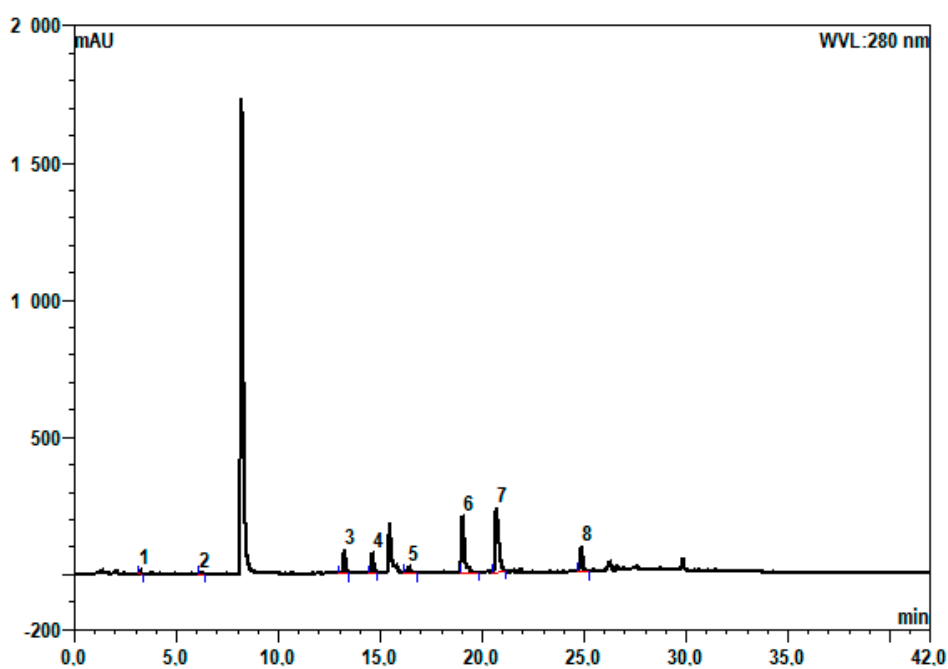


Figure S2. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in EACTICOA sample. Peak labels: 1 - gallic acid, 2 - protocatechuic acid, 3 - caffeic acid aspartate, 4 - (+)-catechin, 5 - *p*-coumaric acid aspartate, 6 - procyanidin B2, 7 - (-)-epicatechin, 8 - procyanidin C1.

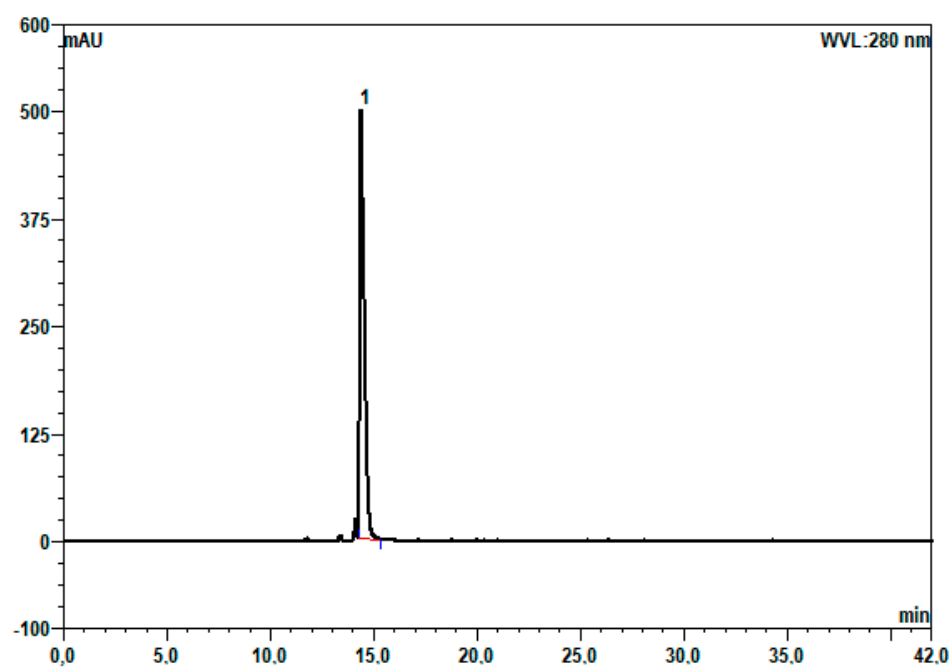


Figure S3. UHPLC-DAD chromatogram of (+)-catechin recorded at 280 nm. Peak labels: 1 - (+)-catechin.

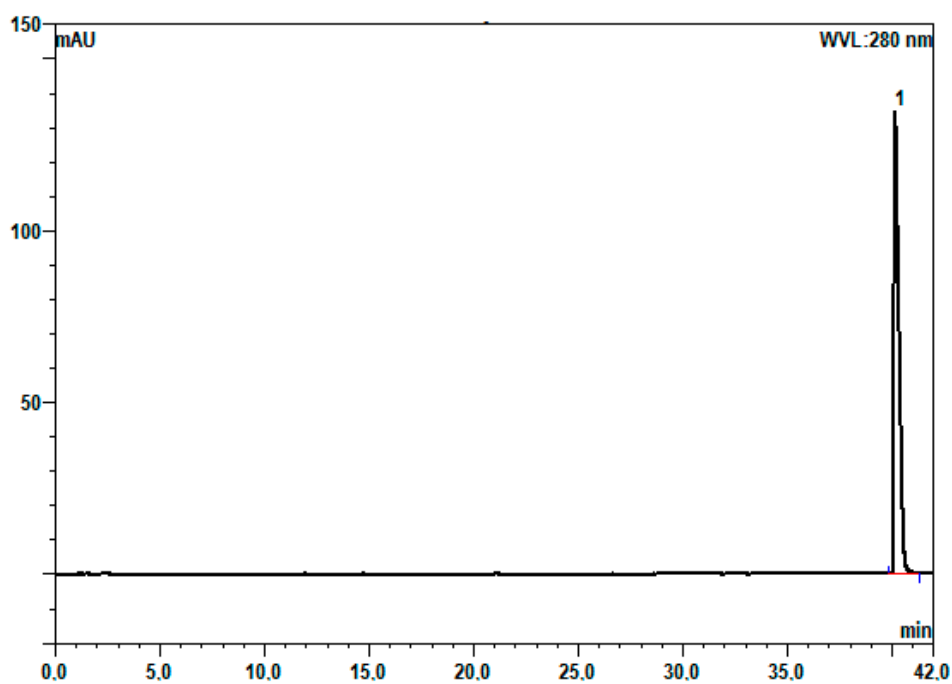


Figure S4. UHPLC-DAD chromatogram of quercetin recorded at 280 nm. Peak labels: 1 - quercetin.

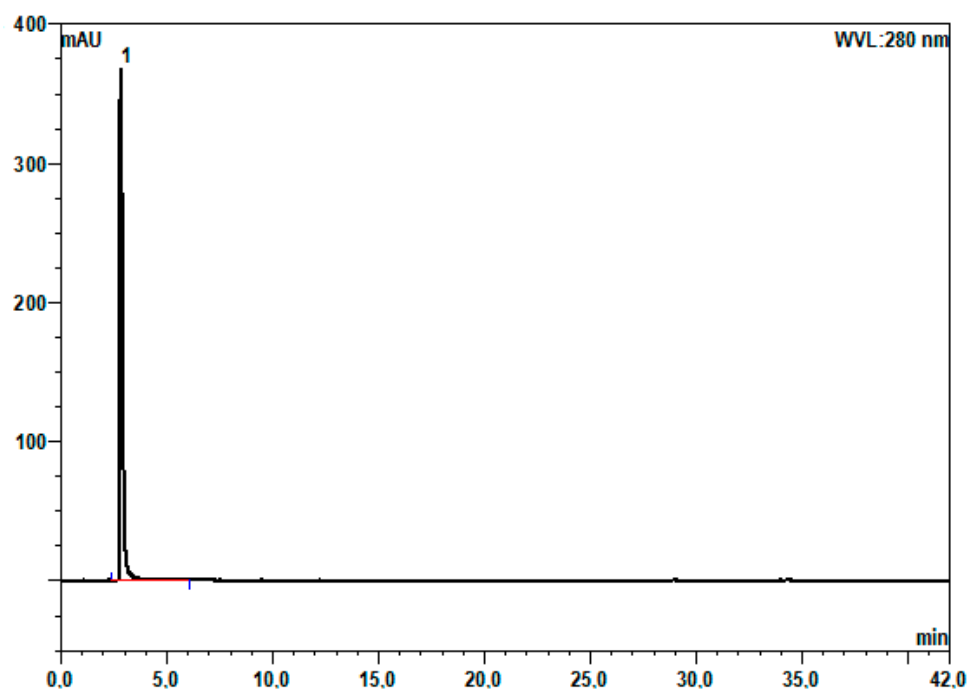


Figure S5. UHPLC-DAD chromatogram of gallic acid recorded at 280 nm. Peak labels: 1 - gallic acid.

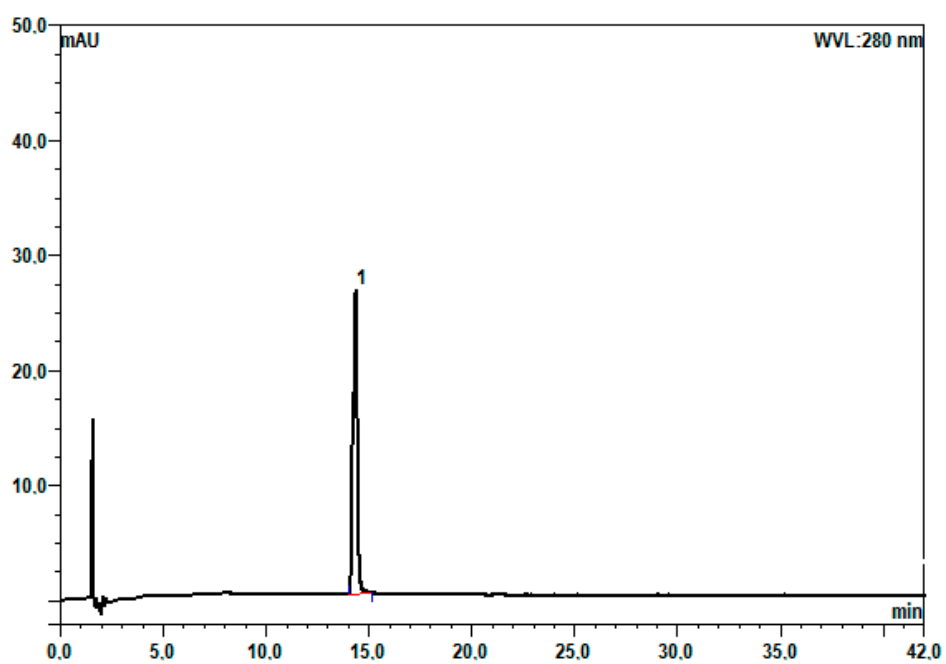


Figure S6. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of (+)-catechin with β -CD. Peak labels: 1 - (+)-catechin.

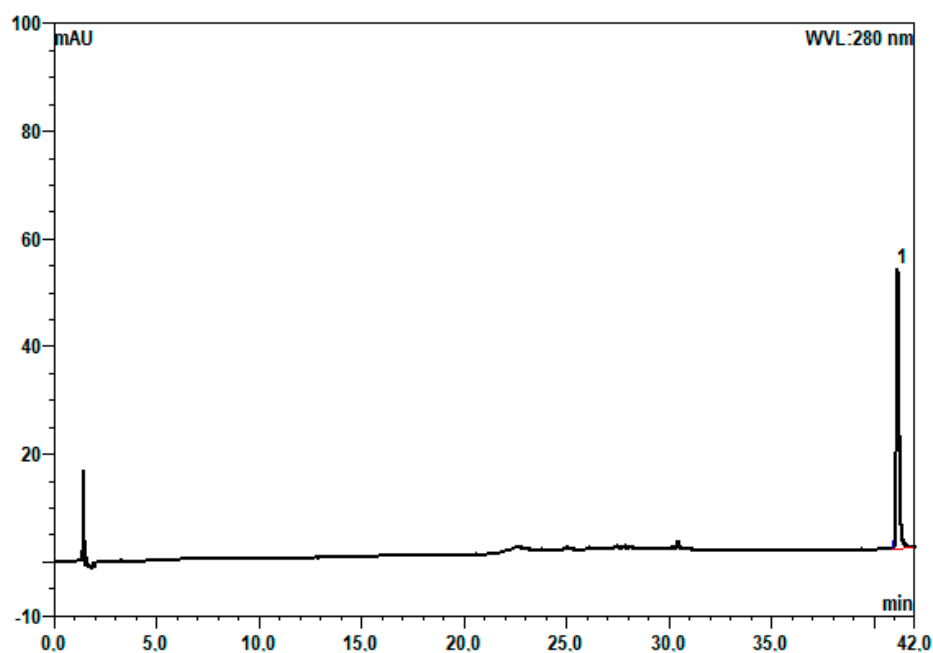


Figure S7. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of quercetin with β -CD. Peak labels: 1 - (+)-quercetin.

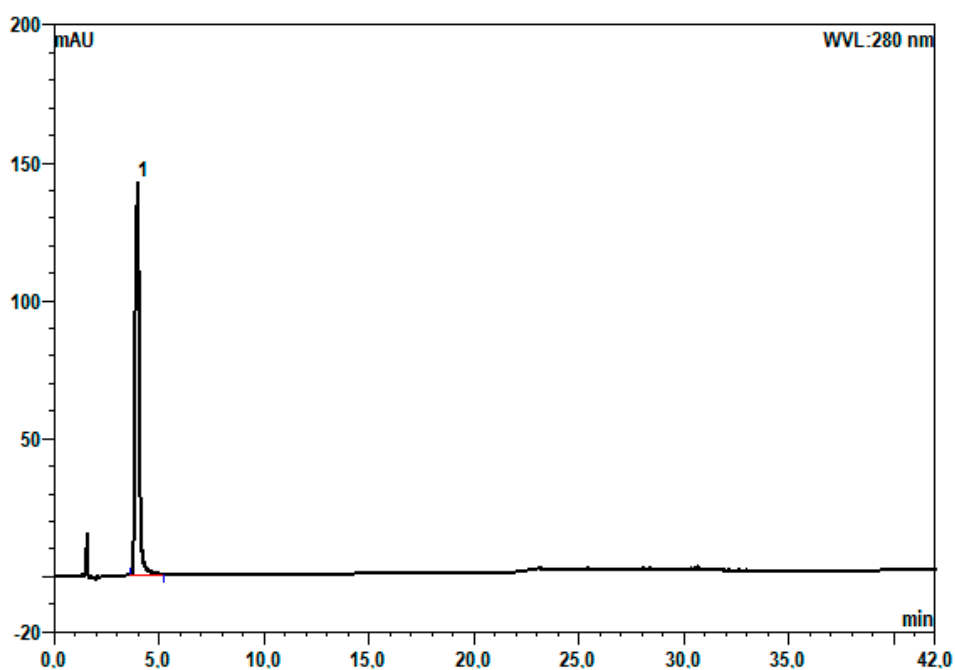


Figure S8. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of gallic acid with β -CD. Peak labels: 1 - gallic acid.

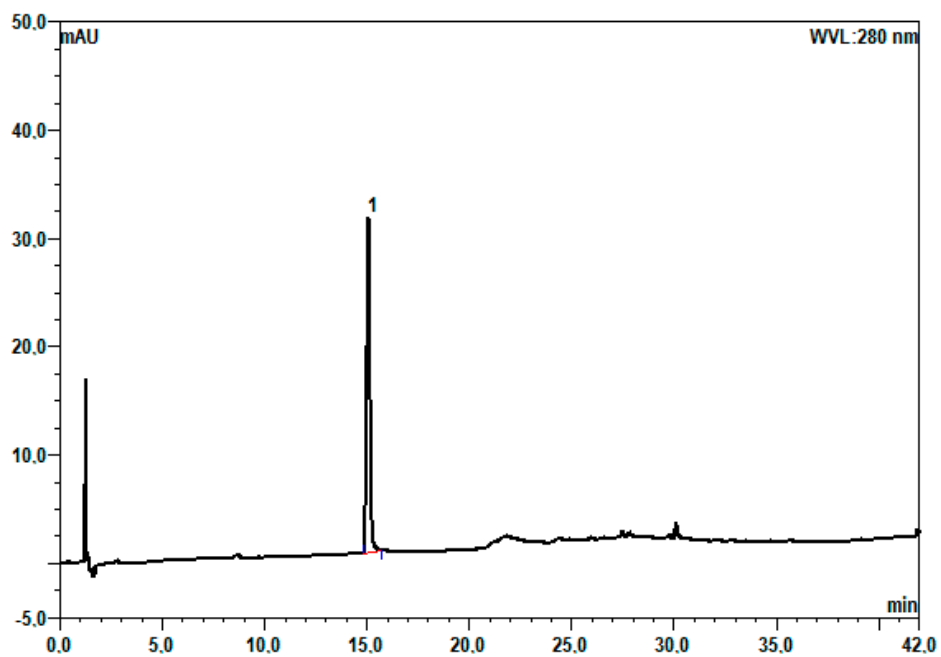


Figure S9. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of (+)-catechin with HP-β-CD. Peak labels: 1 - (+)-catechin.

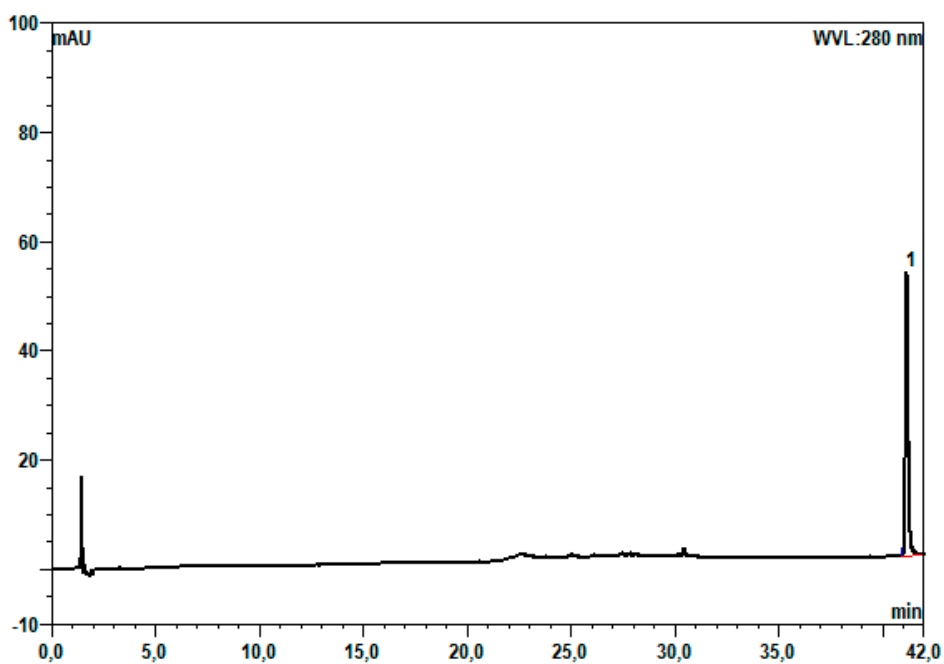


Figure S10. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of quercetin with HP-β-CD. Peak labels: 1 - (+)-quercetin.

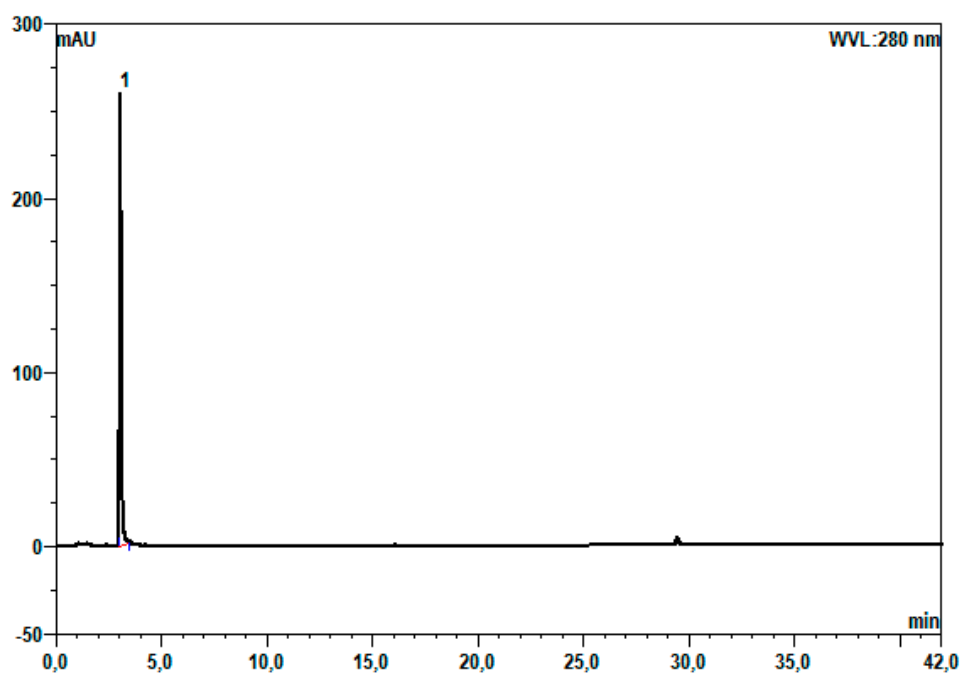


Figure S11. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of gallic acid with HP- β -CD. Peak labels: 1 - gallic acid.

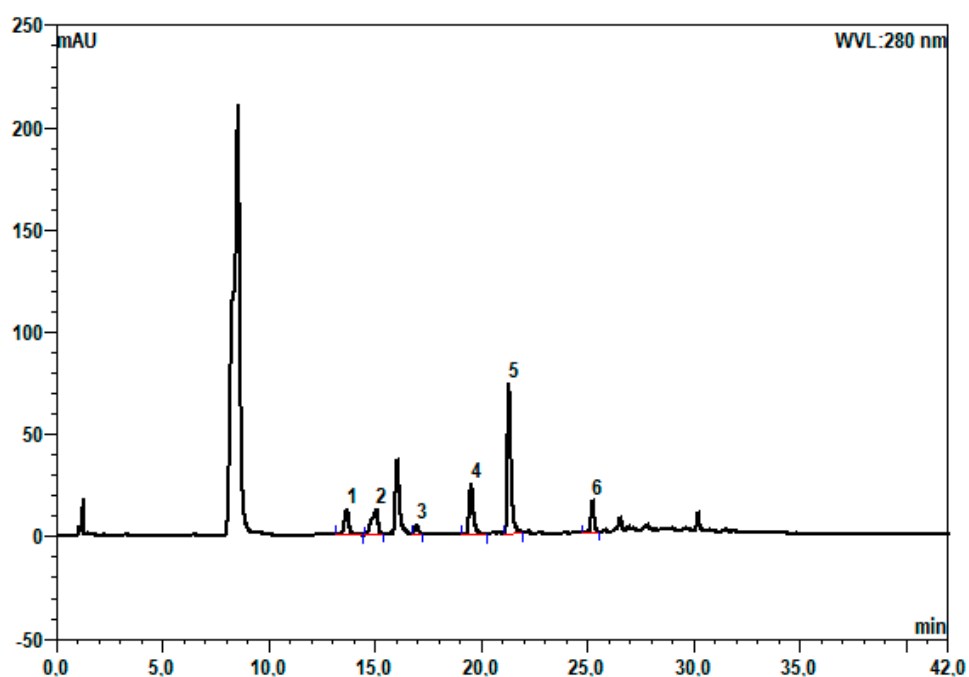


Figure S12. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of ACTICOA with β -CD obtained as a result of reactive extraction sample. Peak labels: 1 - caffeic acid aspartate, 2 - (+)-catechin, 3 - *p*-coumaric acid aspartate, 4- procyanidin B2, 5 - (-)-epicatechin, 6 - procyanidin C1.

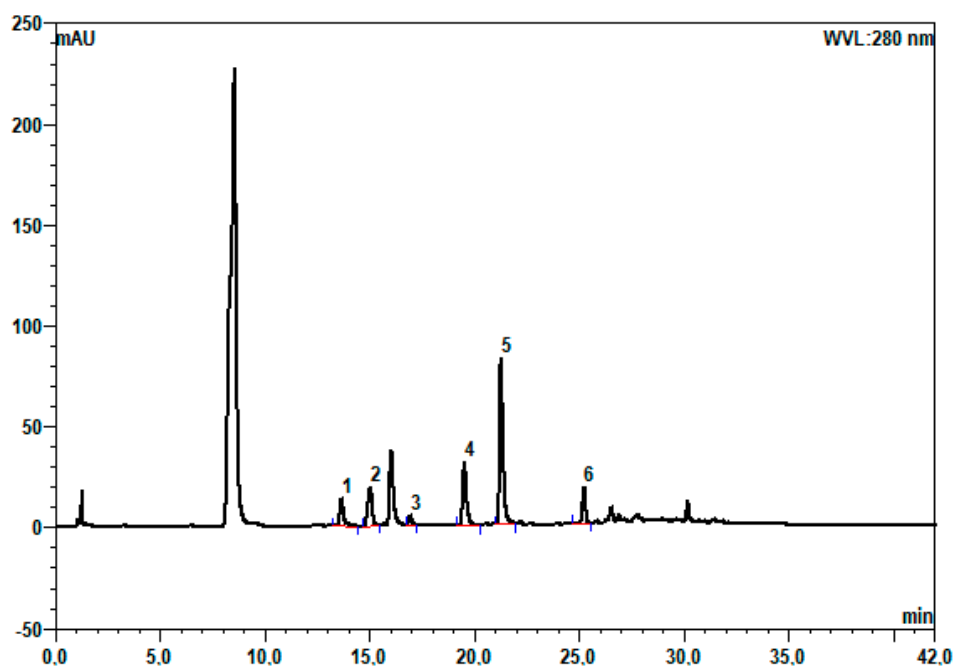


Figure S13. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in inclusion complex of ACTICOA with HP- β -CD obtained as a result of reactive extraction sample. Peak labels: 1 - caffeic acid aspartate, 2 - (+)-catechin, 3 - *p*-coumaric acid aspartate, 4- procyanidin B2, 5 - (-)-epicatechin, 6 - procyanidin C1.

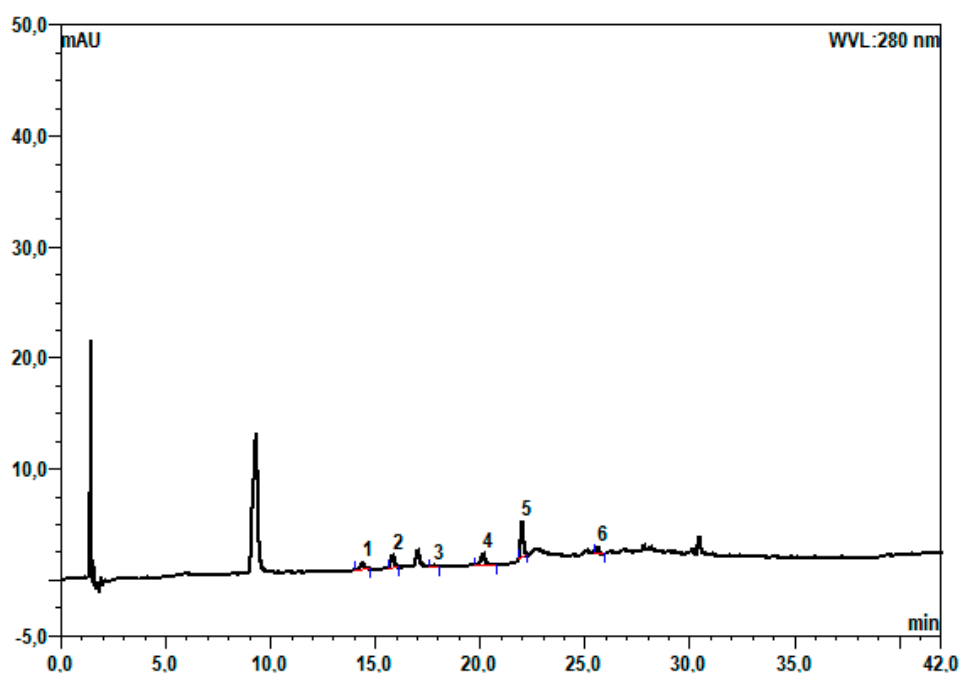


Figure S14. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in alginate-chitosan capsules with EACTICOA obtained according to method 1. Peak labels: 1 - caffeic acid aspartate, 2 - (+)-catechin, 3 - *p*-coumaric acid aspartate, 4- procyanidin B2, 5 - (-)-epicatechin, 6 - procyanidin C1.

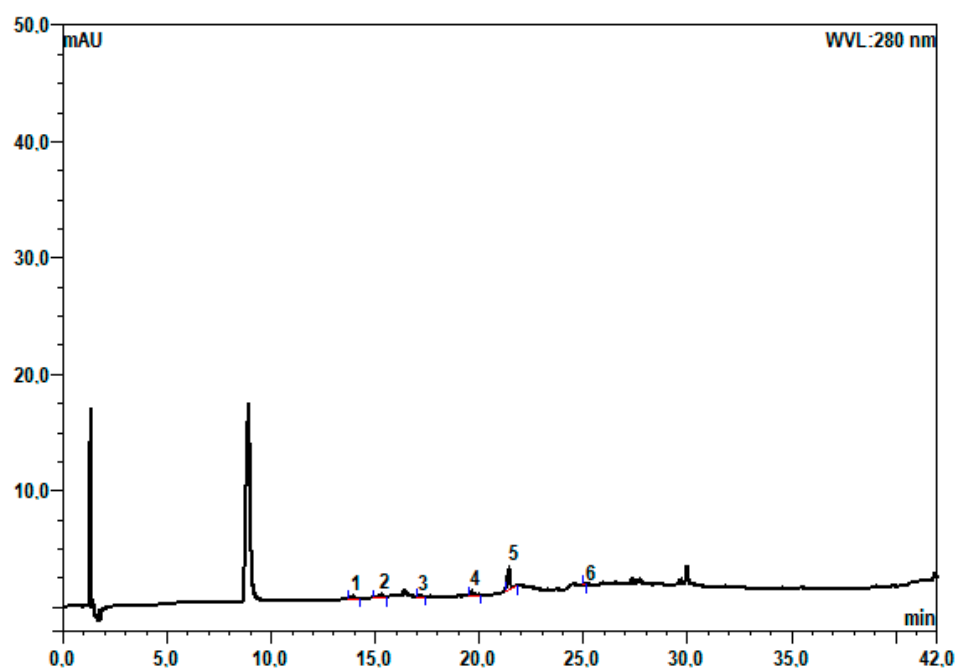


Figure S15. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in alginate-chitosan capsules with EACTICOA obtained according to method 2. Peak labels: 1 - caffeic acid aspartate, 2 - (+)-catechin, 3 - *p*-coumaric acid aspartate, 4- procyanidin B2, 5 - (-)-epicatechin, 6 - procyanidin C1.

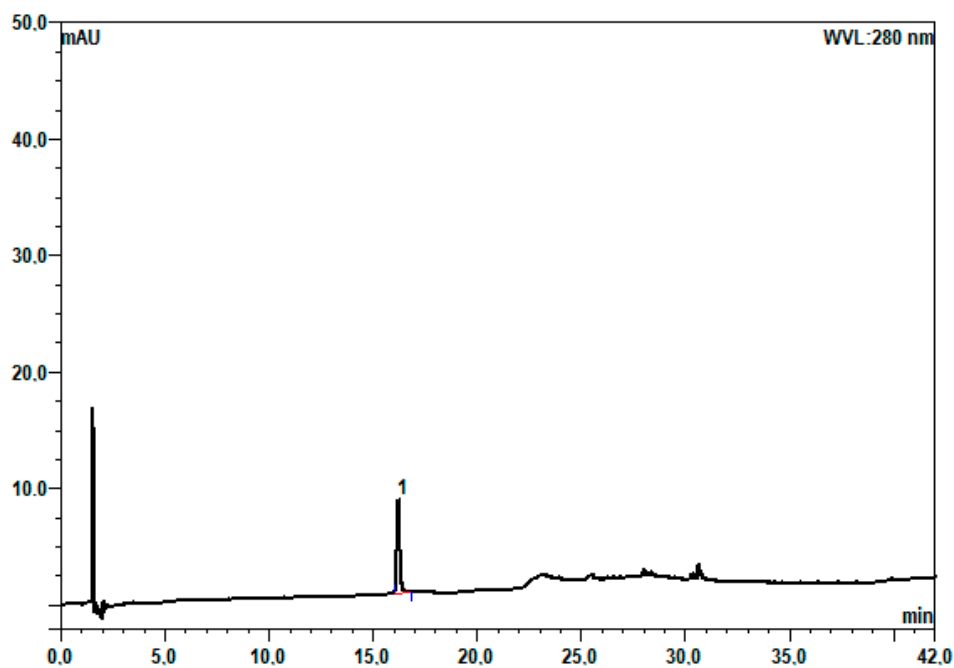


Figure S16. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with (+)-catechin obtained according to method 1. Peak labels: 1 - (+)-catechin.

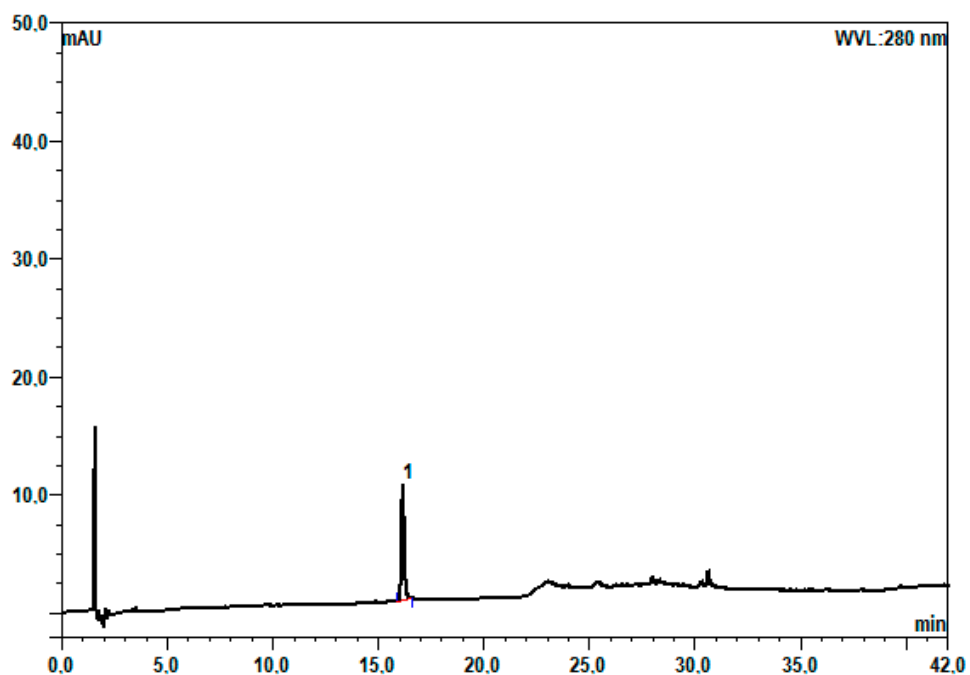


Figure S17. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with (+)-catechin obtained according to method 2. Peak labels: 1 - (+)-catechin.

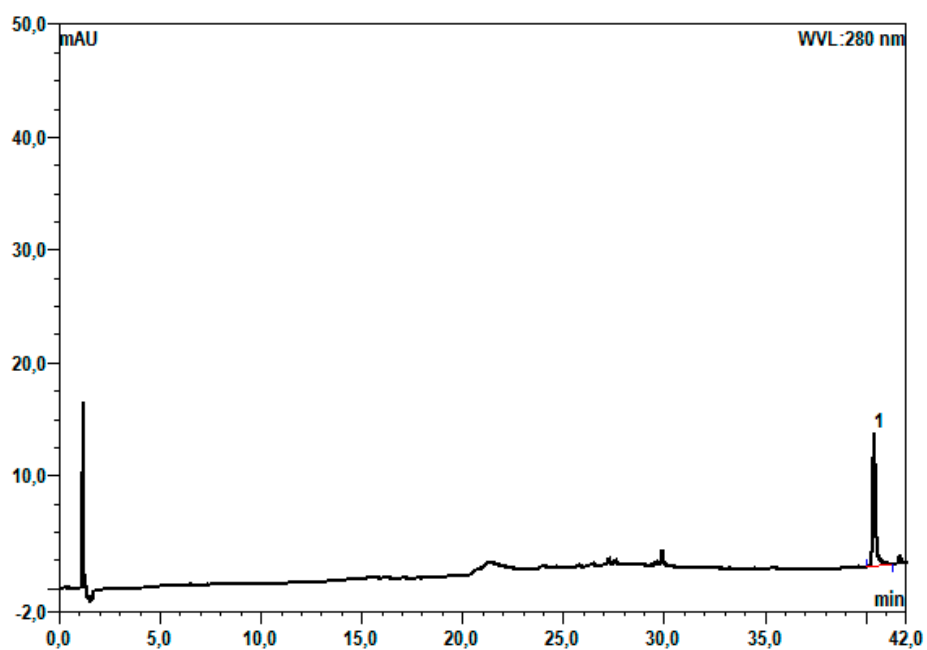


Figure S18. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with quercetin obtained according to method 1. Peak labels: 1 - quercetin.

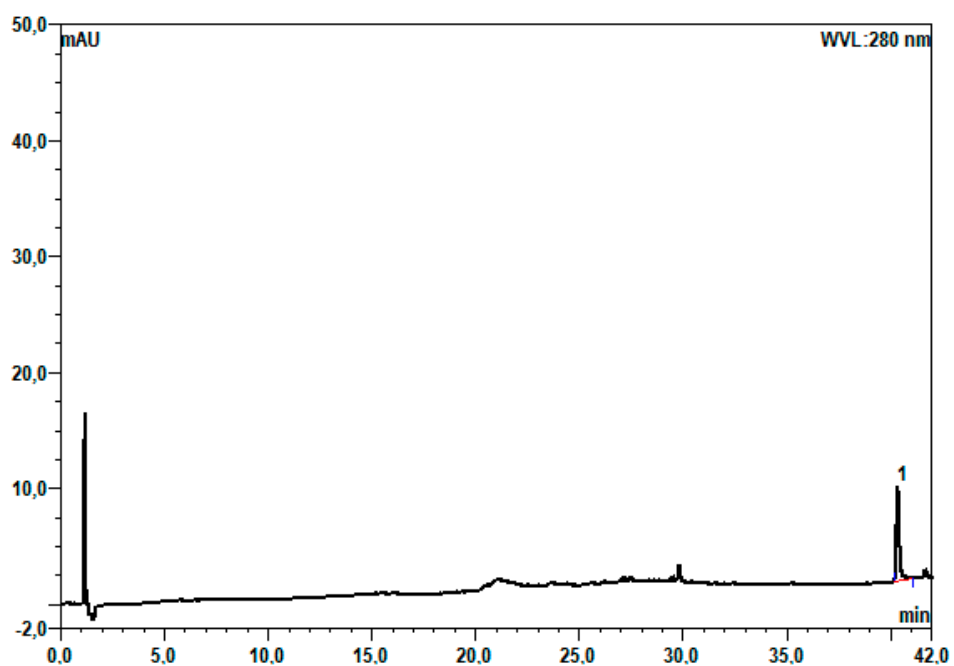


Figure S19. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with quercetin obtained according to method 2. Peak labels: 1 - quercetin.

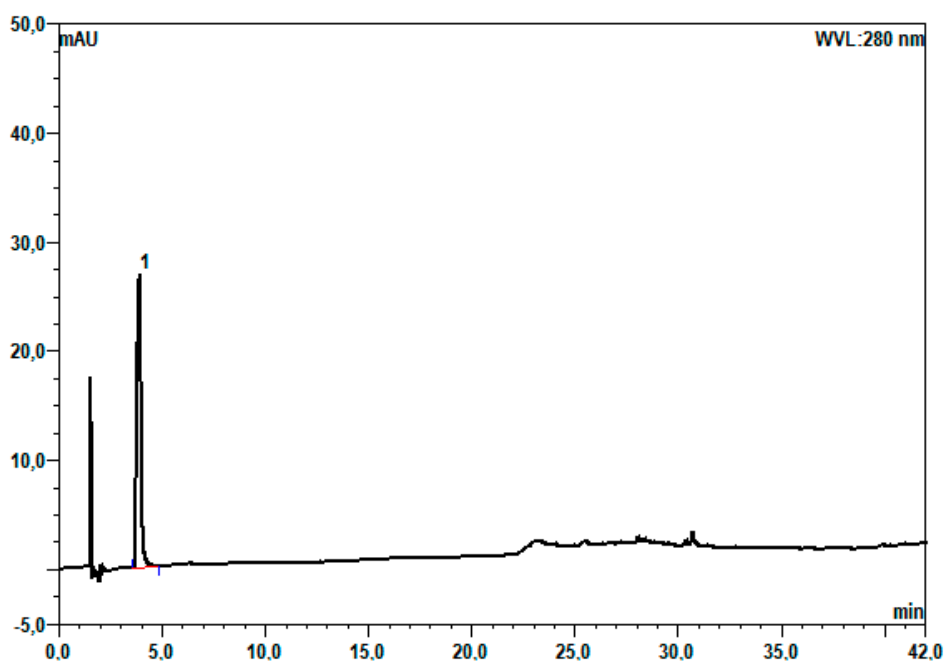


Figure S20. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with gallic acid obtained according to method 1. Peak labels: 1 - gallic acid.

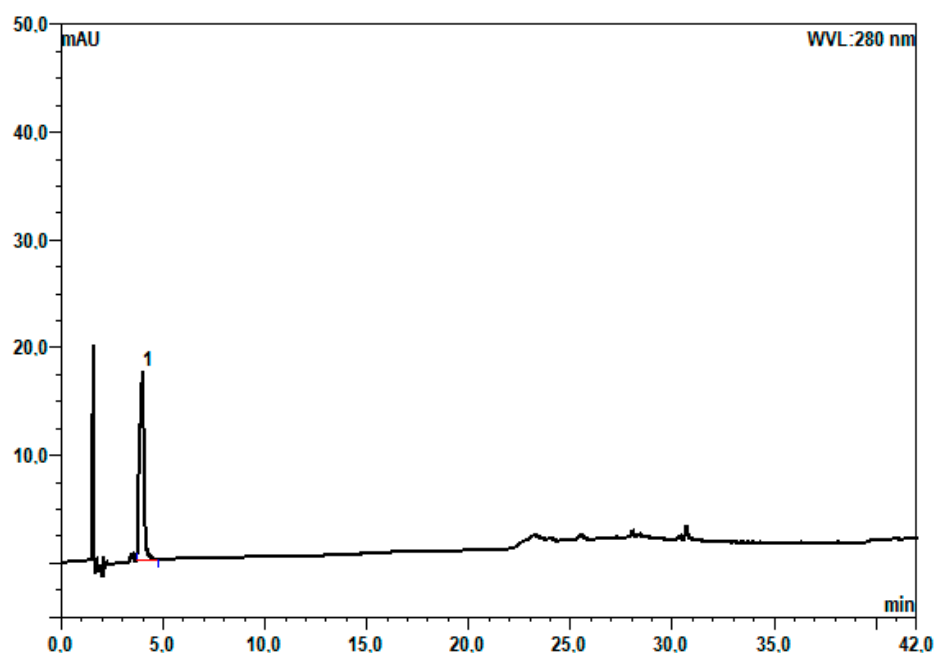


Figure S21. UHPLC-DAD chromatogram of the phenolic compounds recorded at 280 nm in i alginate-chitosan capsules with gallic acid obtained according to method 2. Peak labels: 1 - gallic acid.

Table S1. UHPLC-DAD-ESI-MS/MS identification of phenolic compounds in ACTICOA, EACTICOA, pure phenolic compounds and their encapsulates.

Peak No.	R _t (min)	Phenolic compound	λ_{max} (nm)	MS [M-H] ⁻ (m/z)	Fragmentation ions MS ² (m/z)
1	2.89	Gallic acid	270.3	169.01	125.02, 97.03
2	6.18	Protocatechuic acid	259.3, 290.8	153.02	109.03
3	13.45	Caffeic acid aspartate	297.1, 320.0	294.06	179.03
4	14.91	(+)-Catechin	201.0, 278.6	289.07	245.08, 205.05, 179.03, 125.02
5	16.61	<i>p</i> -Coumaric acid aspartate	307.3	278.07	235.09, 163.04
6	18.20	Procyanidin B2	199.3, 278.9	577.13	425, 407, 451, 289, 125, 559
7	21.61	(-)-Epicatechin	200.9, 278.3	289.07	245.08, 205.05, 179.03, 125.02
8	25.56	Procyanidin C1	199.3, 278.9	865.20	713.15, 575.12, 407.04, 287.06