APPENDIX 4

Electronic Supplementary Material to the paper "Evaluation between ultrahigh pressure liquid chromatography and high-performance liquid chromatography analytical methods for characterizing natural dyestuffs"

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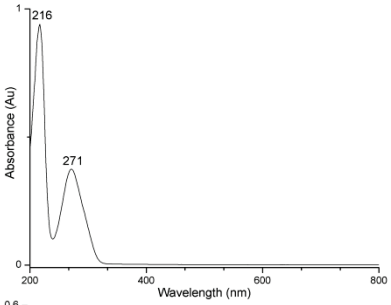
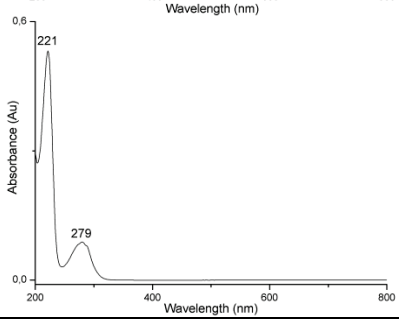
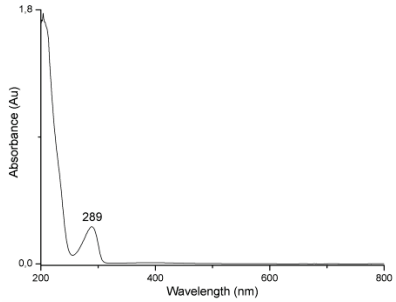
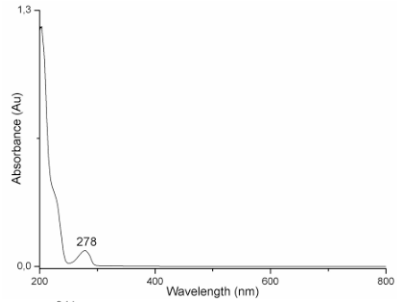
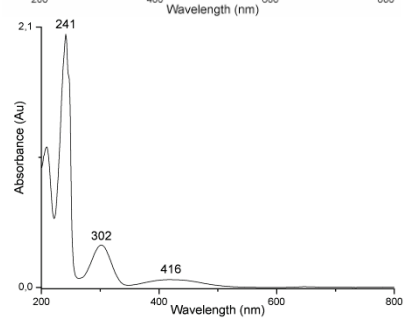
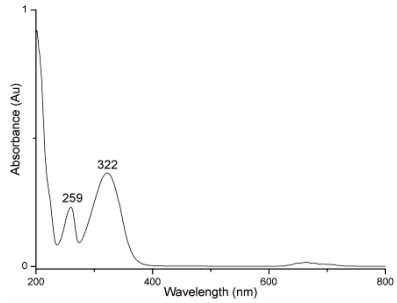
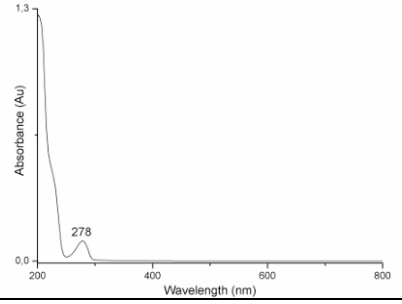
Ana Serrano[a,b], Maarten van Bommel[a], Jessica Hallett[b]

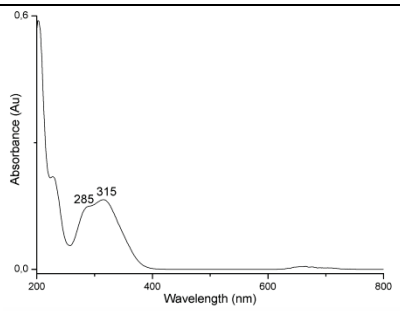
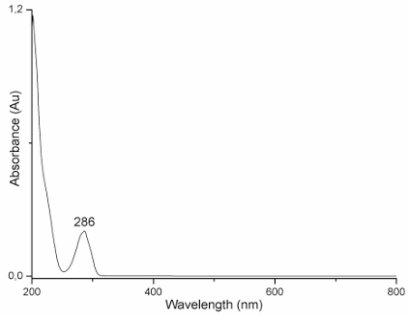
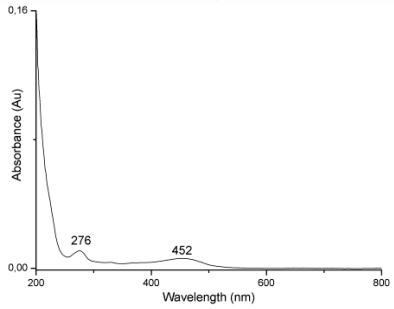
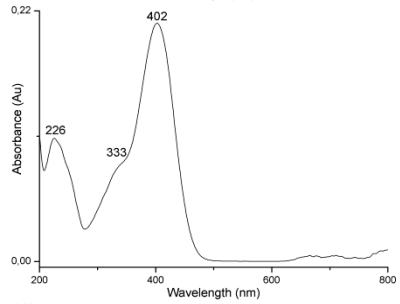
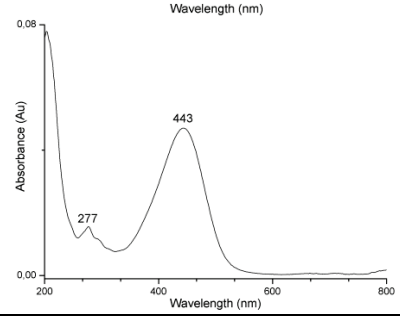
[a] Cultural Heritage Agency of the Netherlands (RCE), Sector Research Movable Heritage, P.O. Box 1600, 3800 BP, Amersfoort, The Netherlands

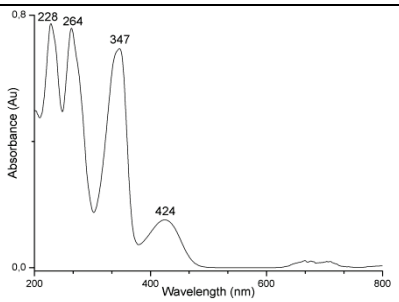
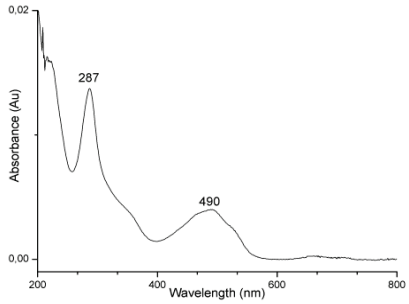
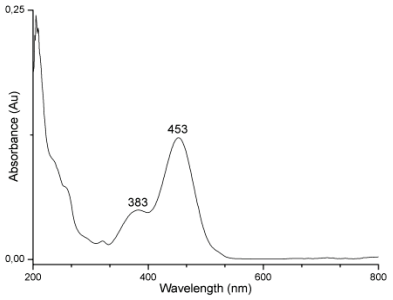
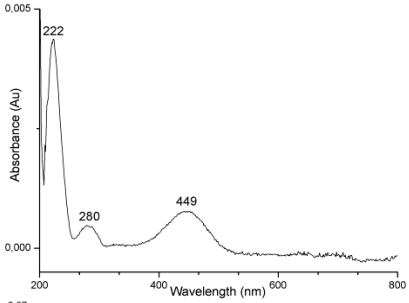
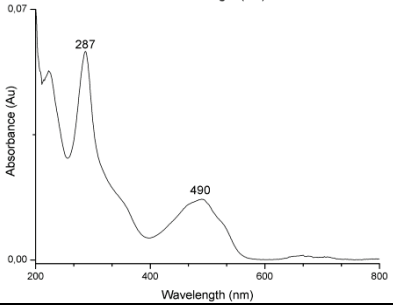
[b] CHAM (Centre for Overseas History), Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa e Universidade dos Açores, Avenida de Berna, 1069 – 061 Lisboa, Portugal

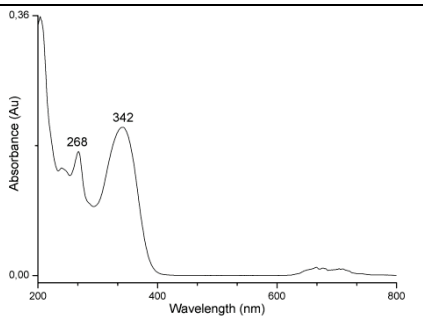
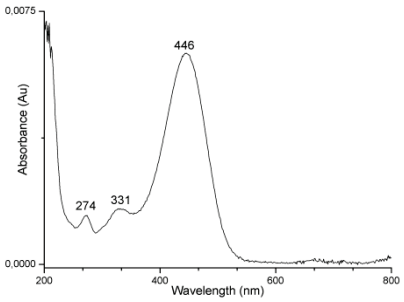
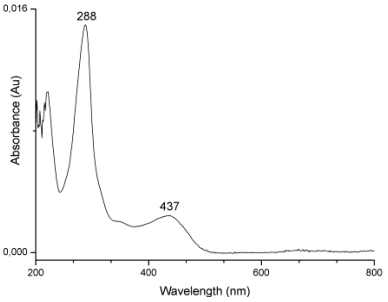
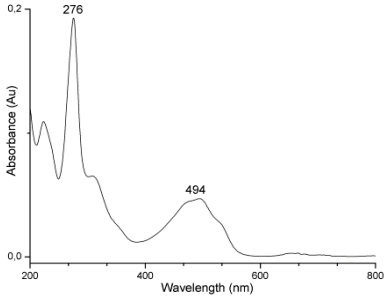
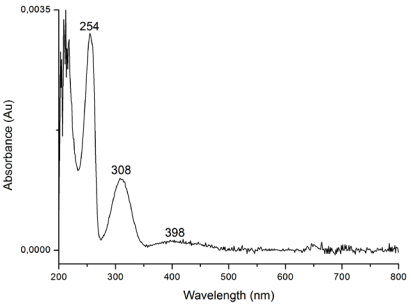
Table 1. Characterization of the retention time and the PDA spectra of the main compounds detected with the analysis of the 59 natural reference materials, belonging to the reference collection of the Cultural Heritage Agency of the Netherlands.

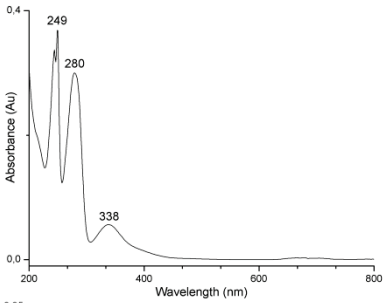
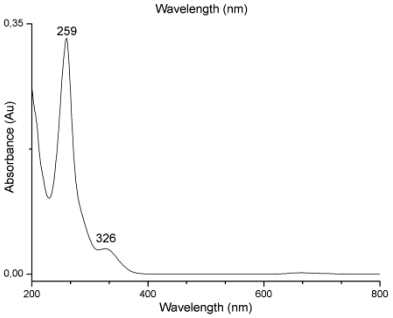
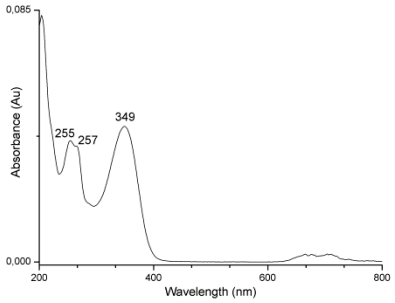
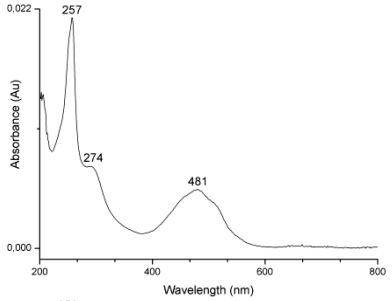
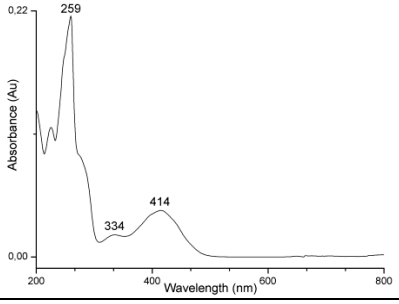
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Gallic acid		Gallic acid	2.98	
Indoxyl		Indoxyl	4.51	

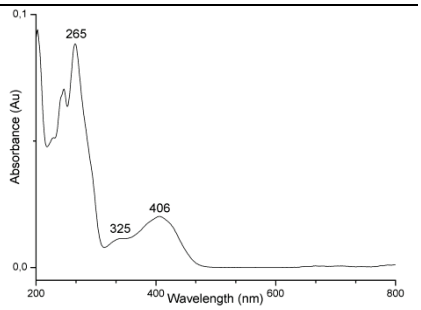
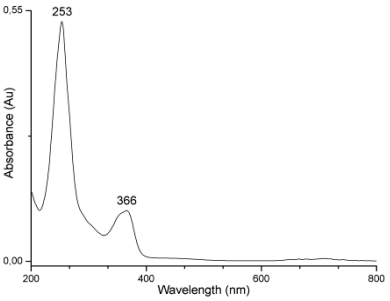
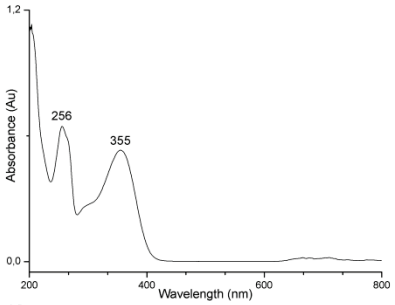
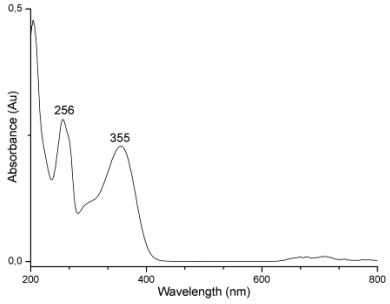
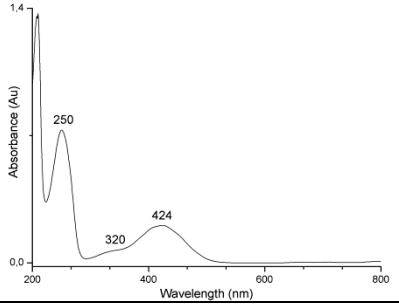
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Haematoxylin	75290	Haematoxylin	4.57	
Catechin hydrated	75250	Catechin	5.99	
Isatin	730000	Isatin	6	
Daphnetin		Daphnetin	6.88	
Epicatechin		Epicatechin	7.17	

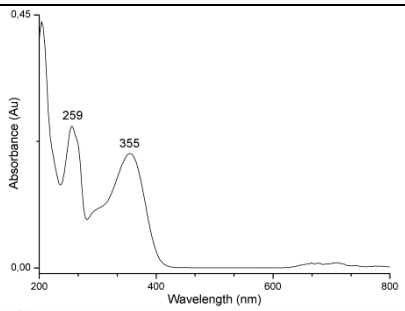
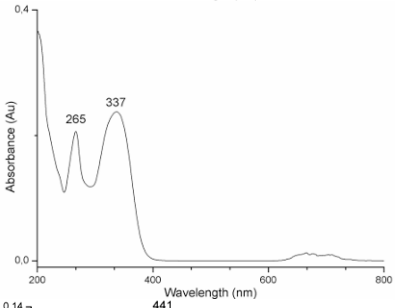
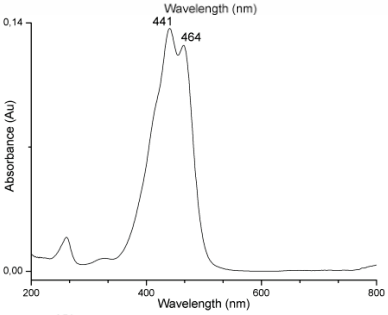
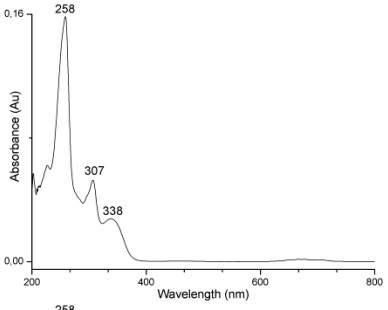
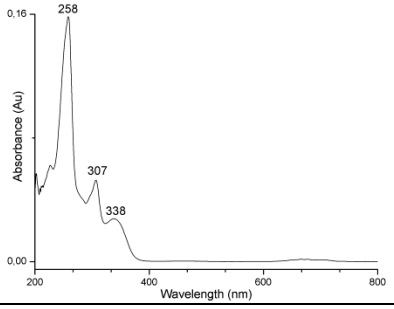
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Maclurin	75240	Maclurin	7.49	
Brazilin		Brazilin	7.5	
Logwood	75290	Haematein prime	7.8	
Carthamin yellow		Carthamin yellow	7.89	
Haematein	75290	Haematein	7.93	

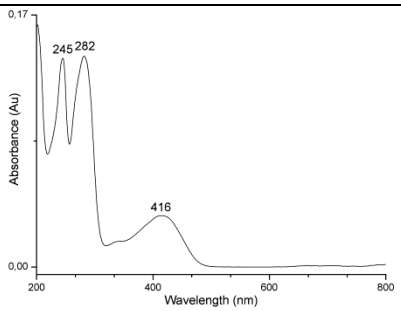
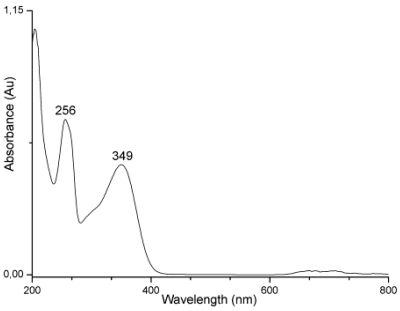
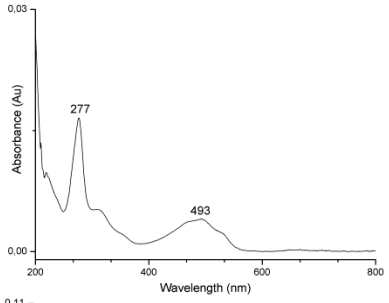
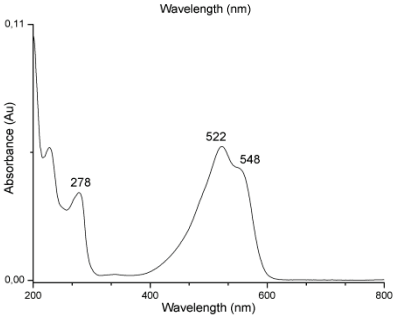
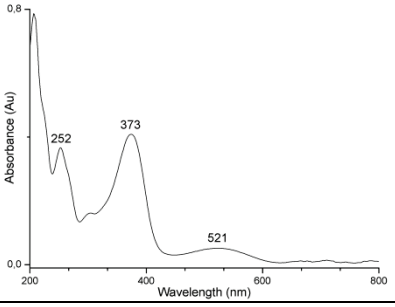
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Barberry (Berberis vulgaris)	75160	Berberine	7.96	
Lac dye	75450	Laccaic acid C	8.18	
Redwood		Anhydro brasilein (brasilein prime)	8.32	
Brasilein		Brasilein	8.42	
Lac dye	75450	Laccaic acid E	8.46	

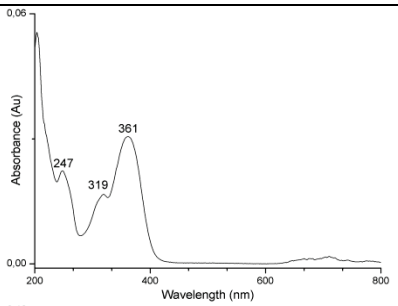
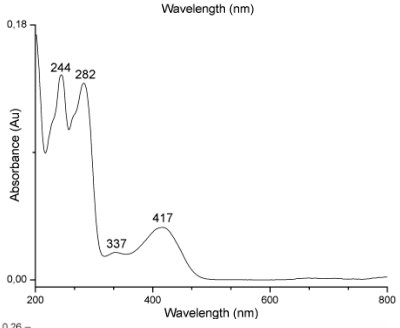
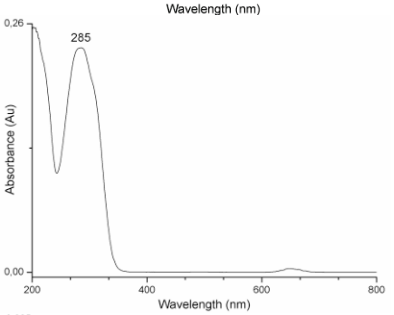
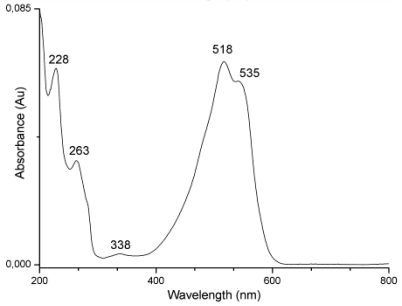
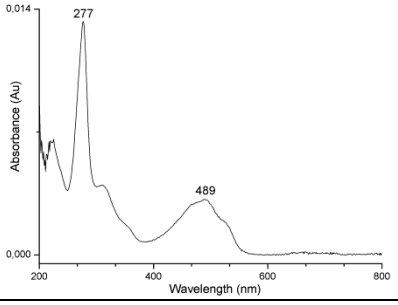
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Luteolin-3', 7-diglycoside		Luteolin-3', 7-diglycoside	9.74	
Brasilein		Anhydro brasilein equivalent	10.16	
American cochineal (*D. coccus*)	75470	dcII (flavokermesic acid glycoside)	10.43	
American cochineal (*D. coccus*)	75470	Carminic acid	10.94	
Purpur		Mono bromo isatin	11.26	

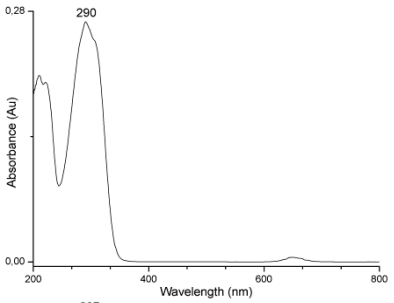
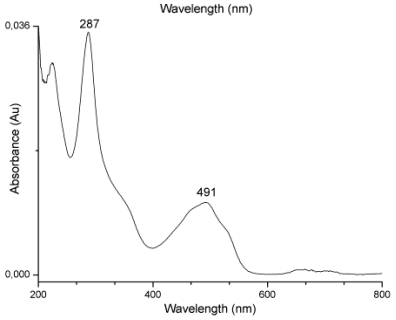
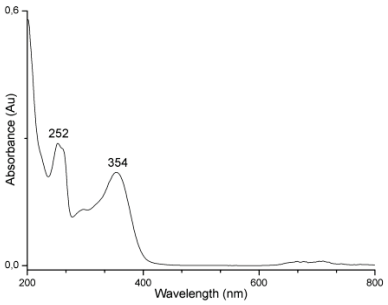
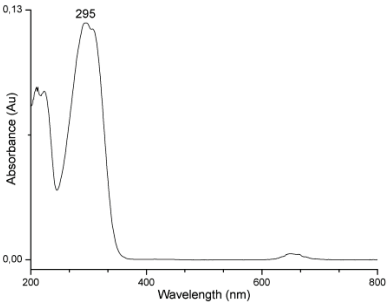
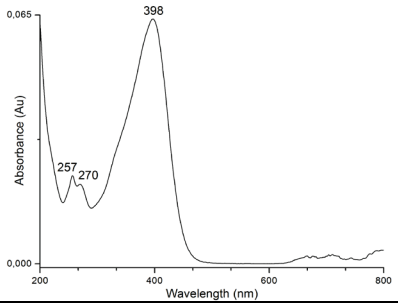
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Lawson	75480	Lawson	11.47	
Genistin		Genistin	11.75	
Luteolin-7-O-β-D-glucoside		Luteolin-7-O-β-D-glucoside	12.37	
Purpurin	75410	Purpurin equivalent	13.12	
Madder		Ruberythric acid	13.258	

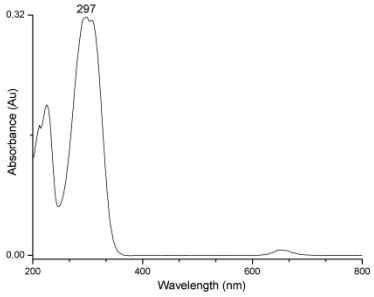
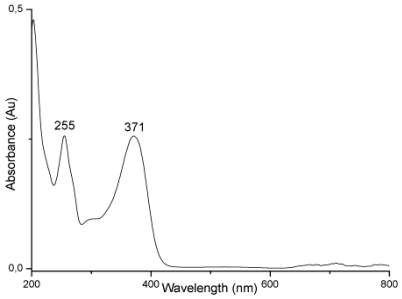
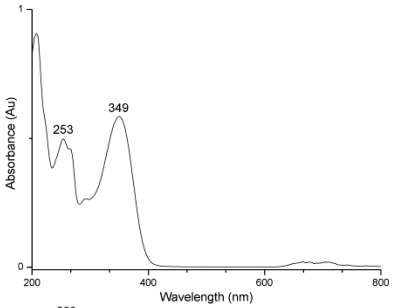
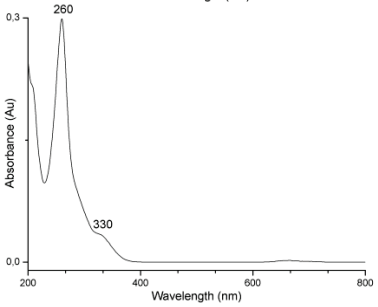
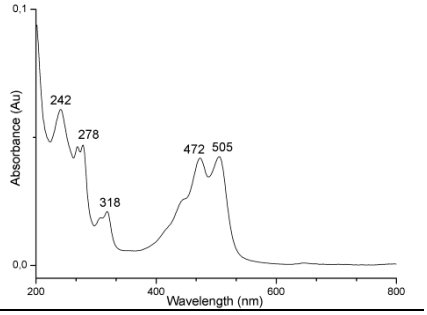
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Madder		Lucidin-3-O-primeveroside	13.483	
Ellagic acid		Ellagic acid	13.62	
Rutin	75730	Rutin	13.67	
Hyperoside		Hyperoside	14.02	
Juglon	755500	Juglon	14.03	

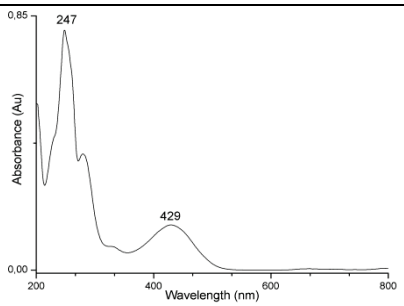
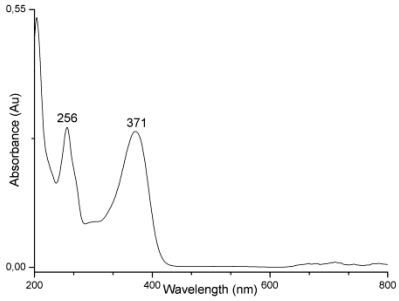
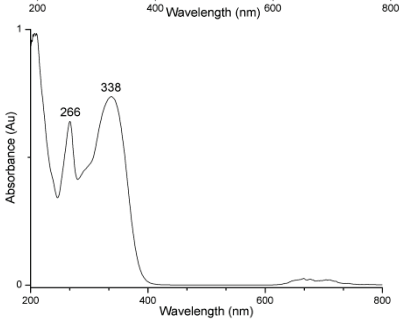
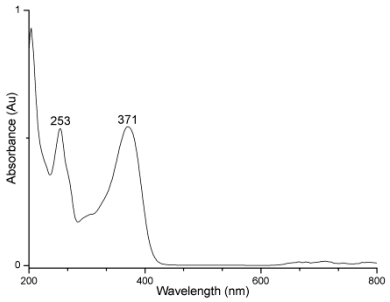
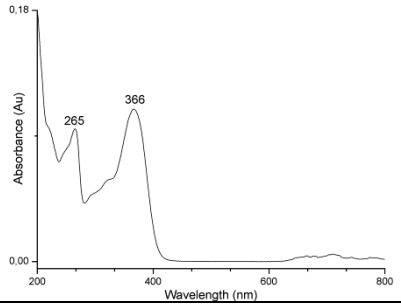
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Isoquercetin		Isoquercetin	14.14	
Apigenin-7-glycoside		Apigenin-7-glucoside	14.41	
Crocin		Crocin	14.51	
Redwood		Type C compound	14.51	
Redwood		Type C compound equivalent	14.62	

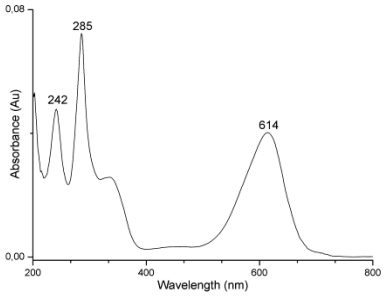
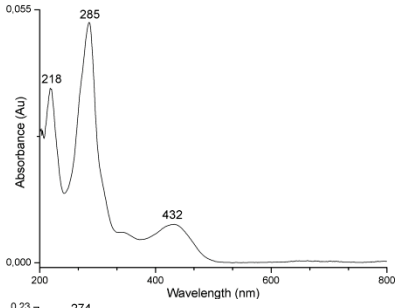
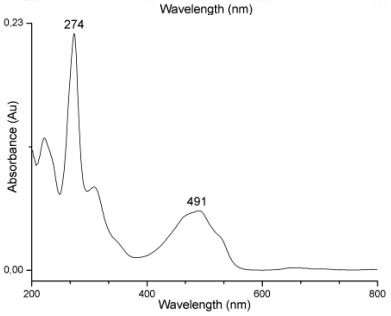
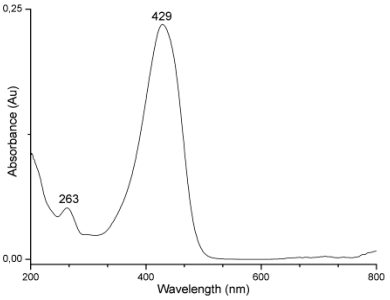
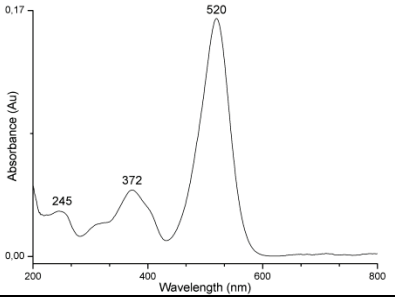
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Madder		Rubiadin-3-O-primeveroside	15.62	
Quercitrin		Quercitrin	15.70	
American cochineal (*D. coccus*)	75470	dcVI (carminic acid glycoside)	15.73	
Orcein		α or β hydroxyl orcein	15.99	
Myricetin		Myricetin	16.06	

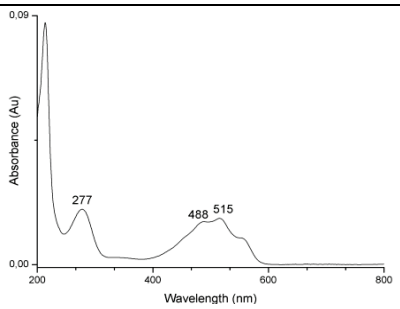
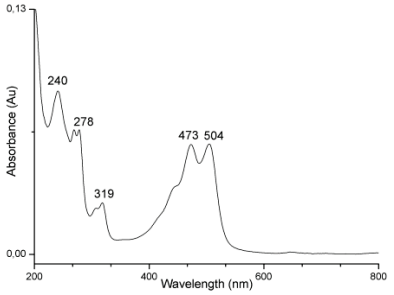
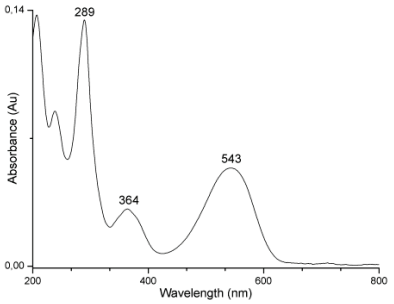
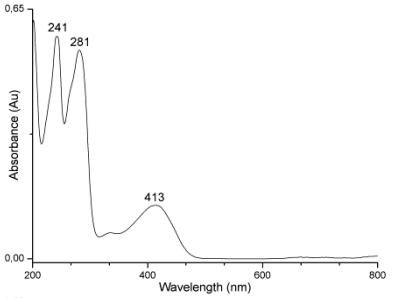
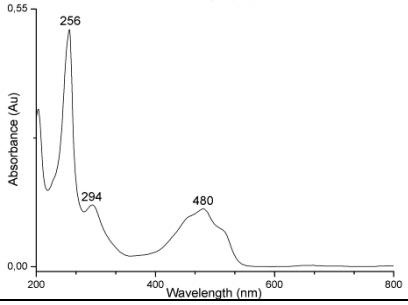
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Fisetin	75620	Fisetin	16.19	
Munjistin	75370	Munjistin	16.27	
Safflower		CT0 safflower related	16.22	
Orcein		α or β hydroxyl orcein (2nd compound)	16.45	
American cochineal (*D. coccus*)	75470	dcVII (carminic acid glycoside)	16.49	

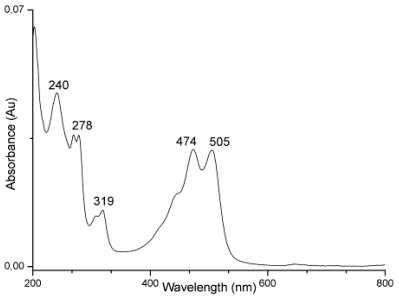
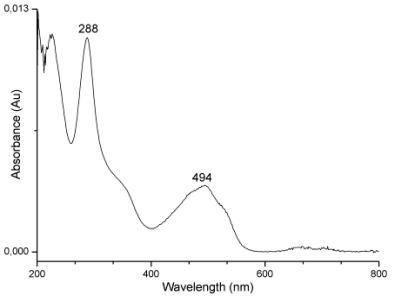
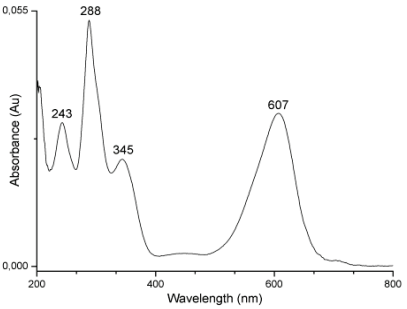
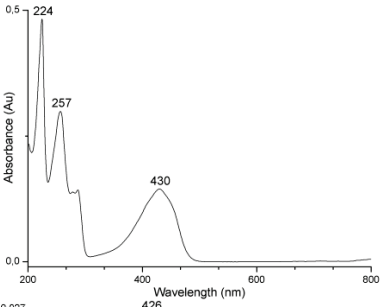
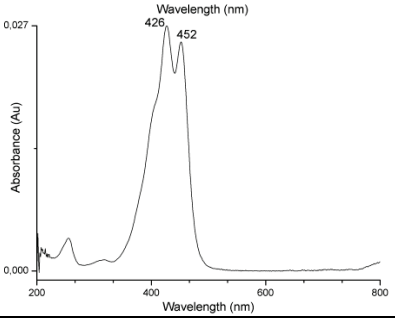
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Safflower		CT1 safflower related	16.84	
Lac dye	75450	Laccaic acid B	16.97	
Morin	75660	Morin	17.04	
Safflower		CT2 safflower related	16.99	
Fisetin	75620	Sulfuretin	17.31	

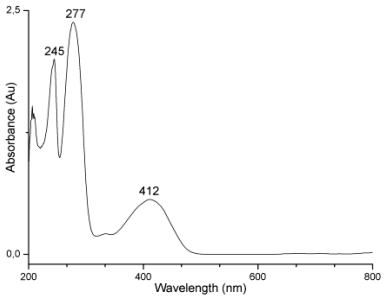
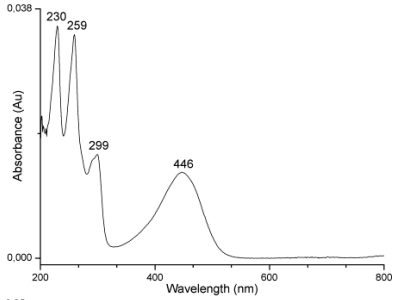
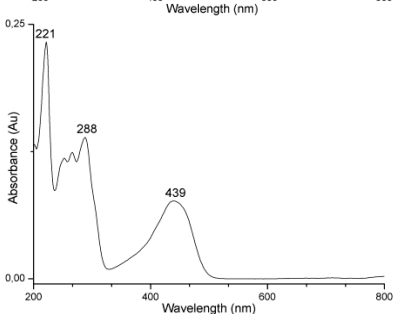
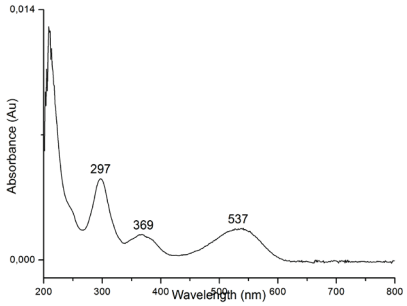
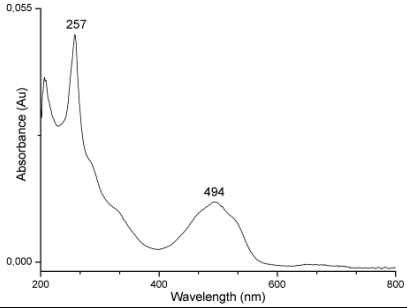
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Safflower		CT3 safflower related	17.56	
Quercetin	75670	Quercetin	18.56	
Luteolin	75660	Luteolin	18.79	
Genistein	75610	Genistein	19.07	
Santalin		Santalin A	20.32	

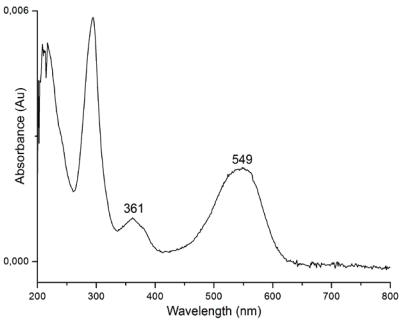
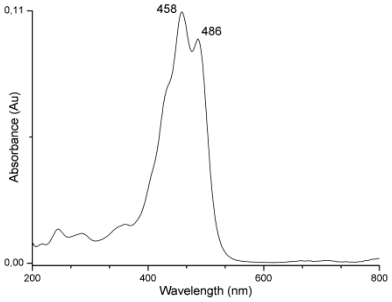
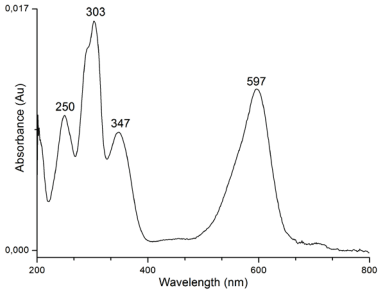
Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Alizarin	75330	Alizarin	20.59	
Rhamnetin	75690	Rhamnetin	20.78	
Apigenin	75580	Apigenin	20.85	
Isorhamnetin		Isorhamnetin	21.1	
Kampferol	75640	Kampferol	21.20	

Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Indigotin	73000	Indigotin	21.7	
Kermes (*K. vermillio*)	75460	Flavokermesic acid	21.85	
Kermes (*K. vermillio*)	75460	Kermesic acid	22.18	
Curcuma (turmeric)	75300	Curcumin	22.88	
Safflower (Carthamus)	75140	Carthamin	23.24	

Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Alkanin	75530	Alkanin	23.26	
Santalin		Santalin B	23.27	
Indigotin	73000	Indirubin	23.93	
Xanthopurpurin	75340	Xanthopurpurin	24.02	
Purpurin	58205	Purpurin	24.32	

Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Santalin		Santalin C	24.8	
Lac dye	75450	Laccaic acid A	25.15	
Purpur		6-monobromoindigotin	26.27	
Chrysophanic acid		Chrysophanol	26.32	
Crocetin		Crocetin	26.47	

Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Rubiadin		Rubiadin	26.72	
Morinda citrifolia	75380	Morindone	27.54	
Emodin	75440	Emodin	27.81	
Purpur		6 - mono bromo indirubin	28.01	
Pseudo-purpurin		Pseudo-purpurin	28.68	

Reference samples	Colour Index number	Main compound detected	Retention time (min)	PDA spectra
Purpur		mono-bromo-indirubin equivalent	28.68	
Anatto		Bixin	29.37	
Purpur		6,6-di-bromo-indigotin	29.46	
Purpur		6,6’-di-bromo-indirubin	30.33