

Supplementary Materials

Single laboratory validation of a quantitative core shell-based LC separation for the evaluation of silymarin variability and antioxidant activity of Pakistani ecotypes of milk thistle (*Silybum marianum* L.) achene extracts

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Table S1. Pearson Correlation Matrix for relationships between flavonolignans, antioxidant activities, phenolic and flavonoid test.

Variables	Phenolic	Flavonoid	Taxifolin	Silychristin	Silydianin	SilybinA	SilybinB	IsosilybinA	IsosilybinB	Silymarin	CUPRAC	FRAP
Phenolic												
Flavonoid	0.94***											
Taxifolin	0.92***	0.91***										
Silychristin	0.77**	0.71**	0.60*									
Silydianin	0.79**	0.75**	0.85***	0.65*								
SilybinA	0.20	0.14	0.49	-0.18	0.49							
SilybinB	0.29	0.23	0.54	-0.08	0.57	0.97***						
IsosilybinA	0.47	0.34	0.55	0.10	0.59*	0.73**	0.80**					
IsosilybinB	0.40	0.26	0.43	0.15	0.46	0.63*	0.69*	0.92***				
Silymarin	0.69*	0.60*	0.84**	0.42	0.86***	0.80**	0.86***	0.79**	0.70*			
CUPRAC	0.78**	0.73**	0.89***	0.37	0.80**	0.70*	0.77**	0.85**	0.74**	0.92***		
FRAP	0.70*	0.64*	0.83**	0.32	0.70*	0.75**	0.8**	0.85**	0.79**	0.91***	0.97***	

* (p<0.05), ** (p<0.01) and *** (p<0.001)

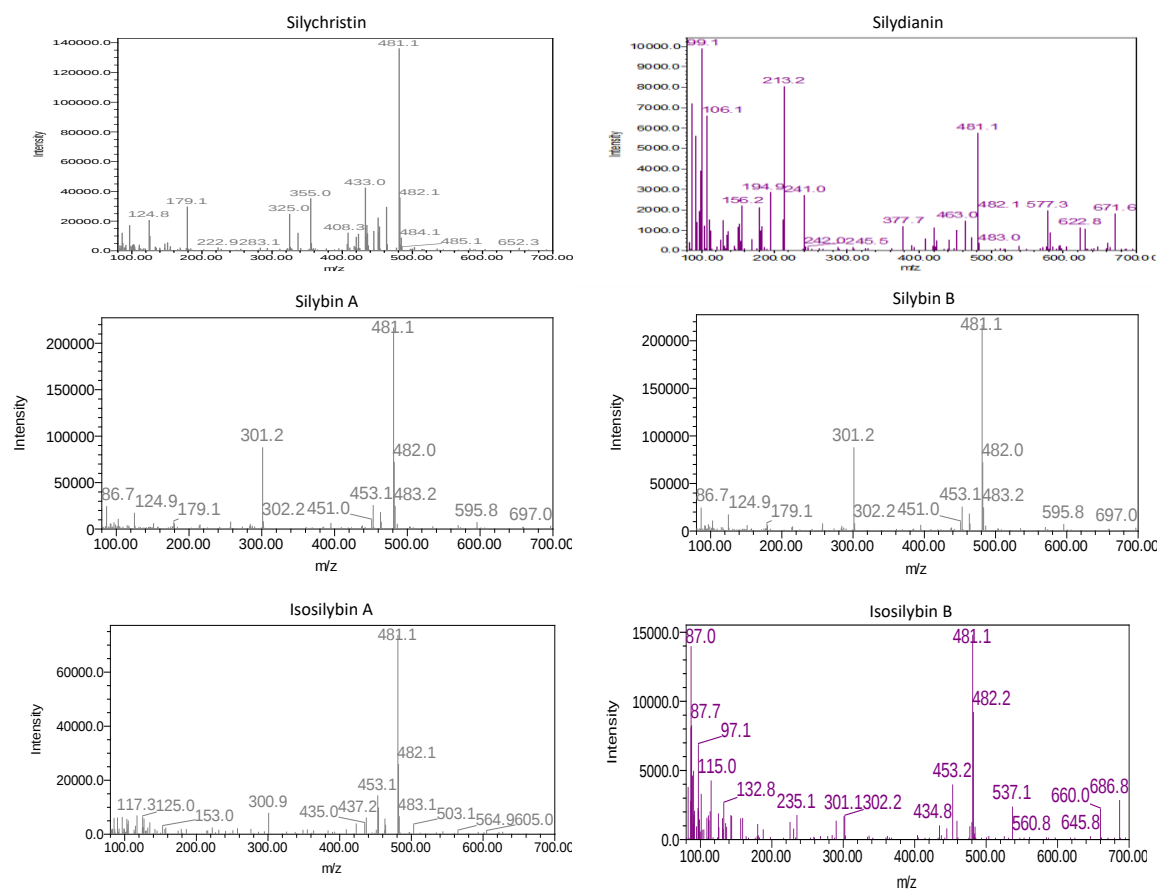


Figure S1. MS spectra of the main flavonolignans from *S. marianum* extract: silychristin, silydianin, silybin A, silybin B, isosilybin A and isosilybin B.

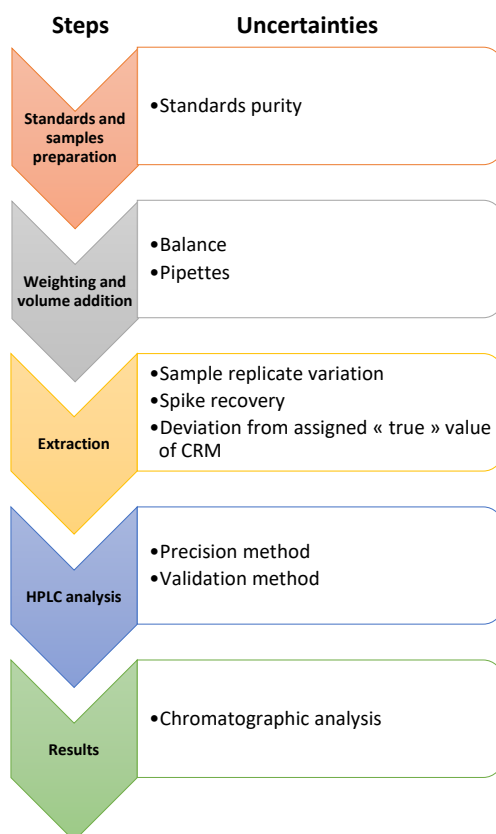


Figure S2. Identification of possible experimental errors present in the analysis.

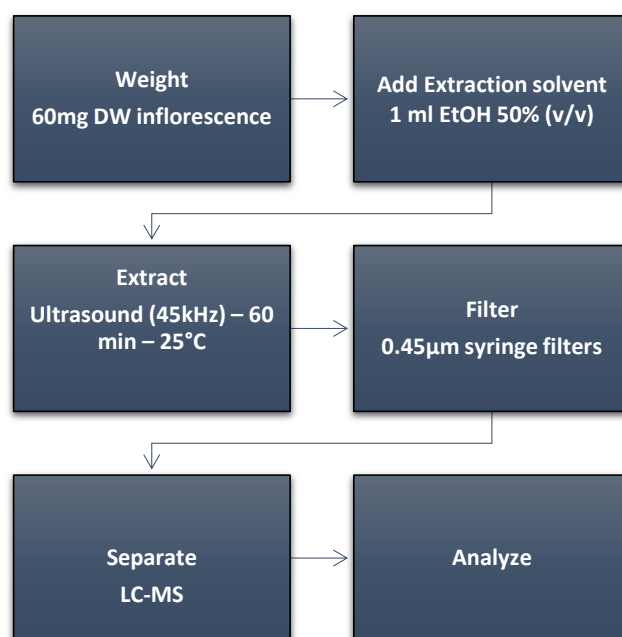


Figure S3. Analytical methodology for the extraction and analysis of the main flavonolignans from *S. marianum* extract.