

# PHYTOCHEMICAL PROFILING AND BIOLOGICAL EVALUATION OF *RHUS CORIARIA* L. LEAVES FOR PREVENTING METABOLIC SYNDROME

Alessandro Garramone<sup>1</sup>, Vittorio Carlucci<sup>2</sup>, Luigi Milella<sup>2</sup>

<sup>1</sup>Department of Basic and Applied Sciences, University of Basilicata

<sup>2</sup>Department of Health Sciences, University of Basilicata

## INTRODUCTION



*Rhus coriaria* L.

### Global health crisis

Obesity and type 2 diabetes require new, biosustainable therapeutic strategies to treat metabolic syndrome

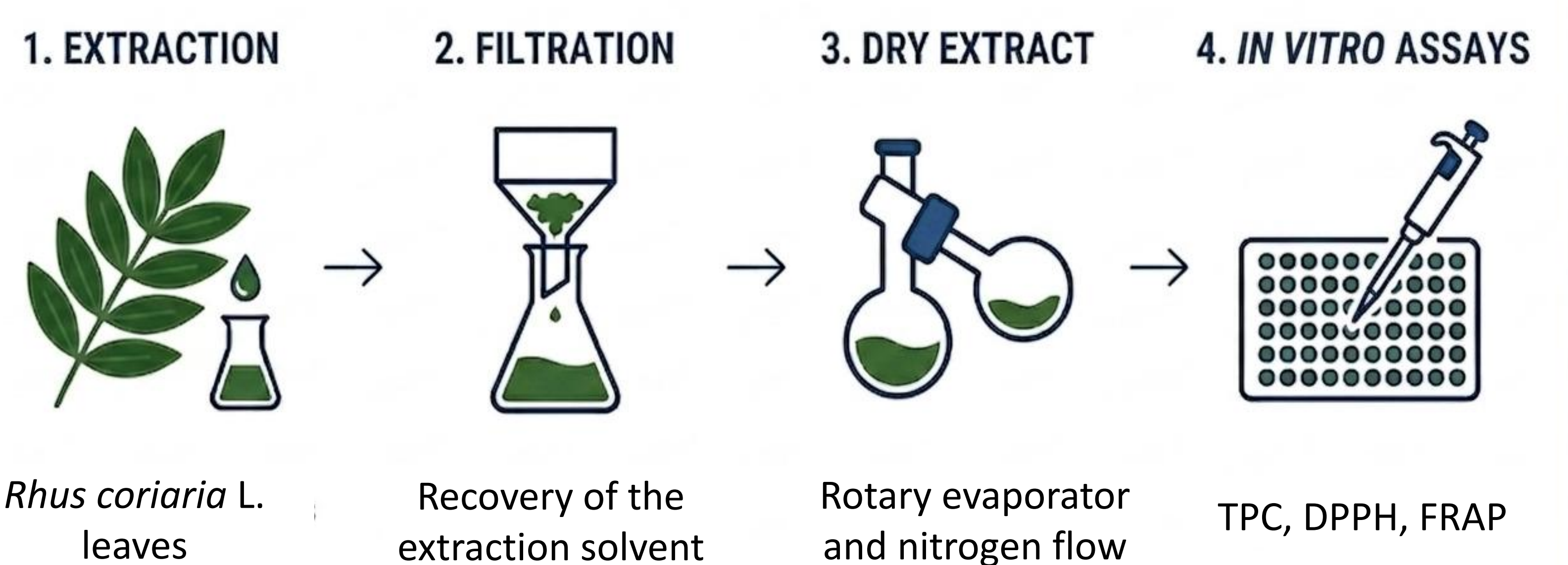
### Phytochemical resource

While Sumac fruits are known, the leaves remain a largely unexplored matrix rich in bioactives

### Research aim

Investigating leaf potential in regulating glucose/lipid homeostasis and mitigating inflammation

## RESULTS



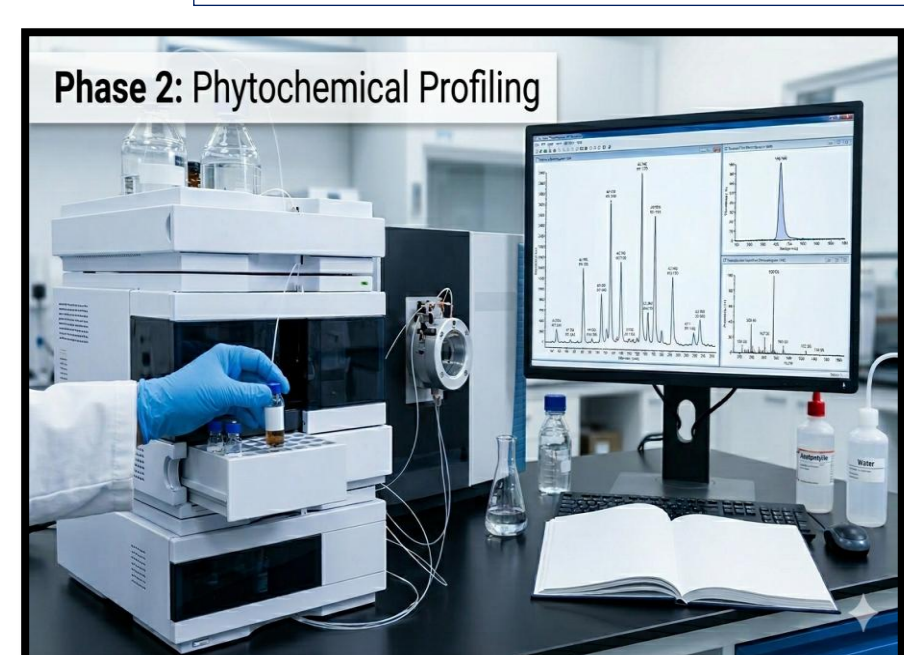
Sample	EtOH (%)	Temp (°C)	Time (min)	Yield (%)	TPC (mg GAE/g)	DPPH (mg TE/g)	FRAP (mg TE/g)
Extract 1	0	60	105	33,37	401.2 ± 12.2	1067.2 ± 12.8	1329.0 ± 39.6
Extract 2	40	20	180	36,39	380.5 ± 10.8	<b>2515.7 ± 119.8</b>	1273.2 ± 5.9
Extract 3	80	40	30	25,57	397.0 ± 30.5	1684.5 ± 29.2	<b>1411.5 ± 68.4</b>
Extract 4	40	40	105	<b>39,40</b>	<b>411.3 ± 8.7</b>	1802.5 ± 22.9	1139.2 ± 42.6

**Table 1.** results of four extractions considering the extraction yield, total phenolic content, expressed in mg of gallic acid equivalent (E)/g, DPPH, expressed in mg of trolox equivalent (E)/g and FRAP, expressed in mg of trolox equivalent (E)/g. All data are expressed as means ± standard deviation

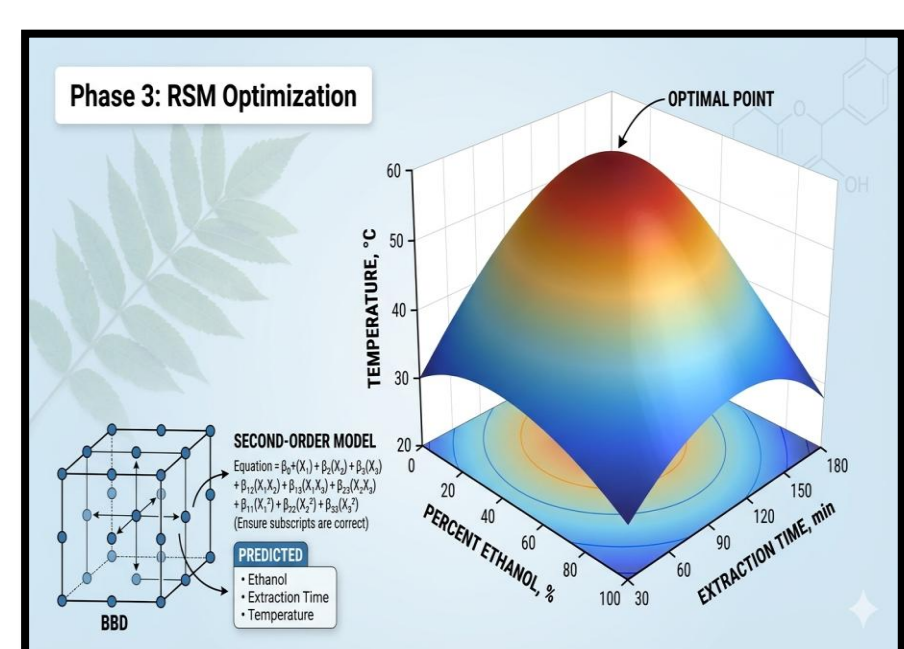
## METHODS



Initial assessment of total polyphenol content and antioxidant potential to determine experimental ranges for optimization



Untargeted metabolite analysis of sumac extract to identify the potential bioactive secondary metabolites



Application of Response Surface Methodology (RSM) considering critical parameters (ethanol, time, temperature) to obtain the optimized extract



*In vitro* assays to validate the safety and therapeutic potential of the optimized extract

## CONCLUSIONS

- Preliminary screening tests of sumac leaves have successfully identified the critical ranges for ethanol concentration, extraction time and temperature;
- initial antioxidant assays and total polyphenol content confirm the high radical scavenging potential of the matrix and the presence of several secondary metabolites. These promising results strongly justify the need for an in-depth LC-MS analysis to obtain a comprehensive phytochemical fingerprint and identify the specific bioactive markers;
- the data obtained ensures that the subsequent statistical design will accurately identify the optimal extraction conditions for Sumac leaves, maximizing the recovery of bioactive compounds.

## REFERENCES

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