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Exploring the effects of traditional pretreatment techniques on Mahua (*Madhuca Longifolia*) seed oil extraction

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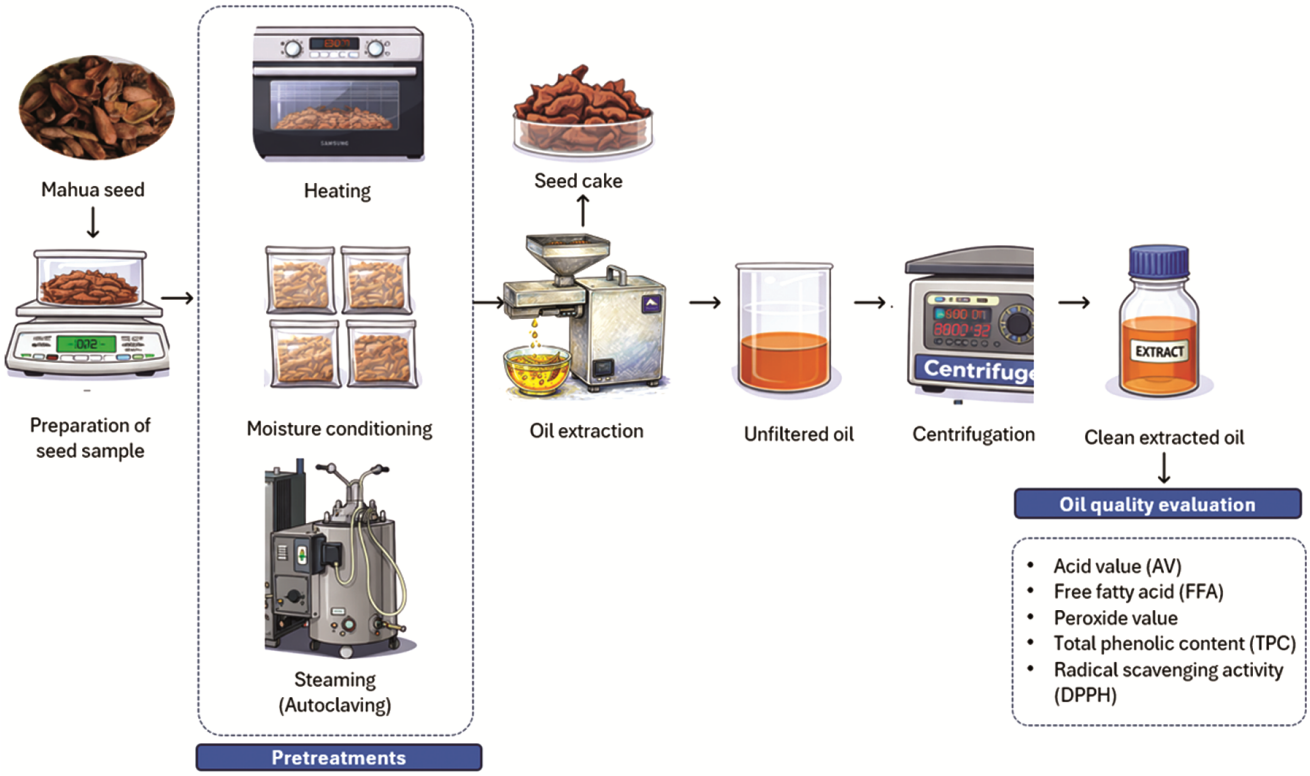
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Supplementary Data

Supplementary Table S1 — Summary of one-way ANOVA and model performance for the effects of different pretreatments on oil yield and quality characteristics of mahua seed oil

Response Variable	Pretreatment	F-value	p-value	R^2	Adjusted R^2	Significance
Oil Yield	Heating	31.074	<0.0001	0.926	0.896	***
	Steaming	8.052	0.008	0.751	0.658	**
	Moisture Conditioning	26.200	<0.0001	0.908	0.873	***
Oil Recovery	Heating	31.074	<0.0001	0.926	0.896	***
	Steaming	8.052	0.008	0.751	0.658	**
	Moisture Conditioning	26.200	<0.0001	0.908	0.873	***
Acid Value (AV)	Heating	21.063	<0.0001	0.894	0.851	***
	Steaming	4.809	0.034	0.643	0.510	*
	Moisture Conditioning	3.591	0.066	0.574	0.414	NS
Free Fatty Acid (FFA)	Heating	11.371	0.001	0.820	0.748	***
	Steaming	1.706	0.243	0.390	0.161	NS
	Moisture Conditioning	1.386	0.316	0.342	0.095	NS
Peroxide Value (PV)	Heating	10.786	0.001	0.812	0.737	**
	Steaming	4.955	0.031	0.650	0.519	*
	Moisture Conditioning	16.583	0.001	0.861	0.810	***
Radical Scavenging Activity (RSA)	Heating	66.314	<0.0001	0.964	0.949	***
	Steaming	495.462	<0.0001	0.995	0.993	***
	Moisture Conditioning	390.607	<0.0001	0.993	0.991	***
Total Phenolic Content (TPC)	Heating	41.052	<0.0001	0.943	0.920	***
	Steaming	20.199	<0.0001	0.883	0.840	***
	Moisture Conditioning	9.157	0.006	0.774	0.690	**

Values represent one-way ANOVA model statistics for each pretreatment. R^2 = coefficient of determination; Adjusted R^2 = adjusted coefficient of determination. Significance codes: NS = not significant ($p > 0.05$); * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.



Supplementary Fig. S1 — Effect of different pretreatments on oil yield and recovery