SUPPLEMENTARY MATERIAL

Identification of a new natural gastric lipase inhibitor from star anise

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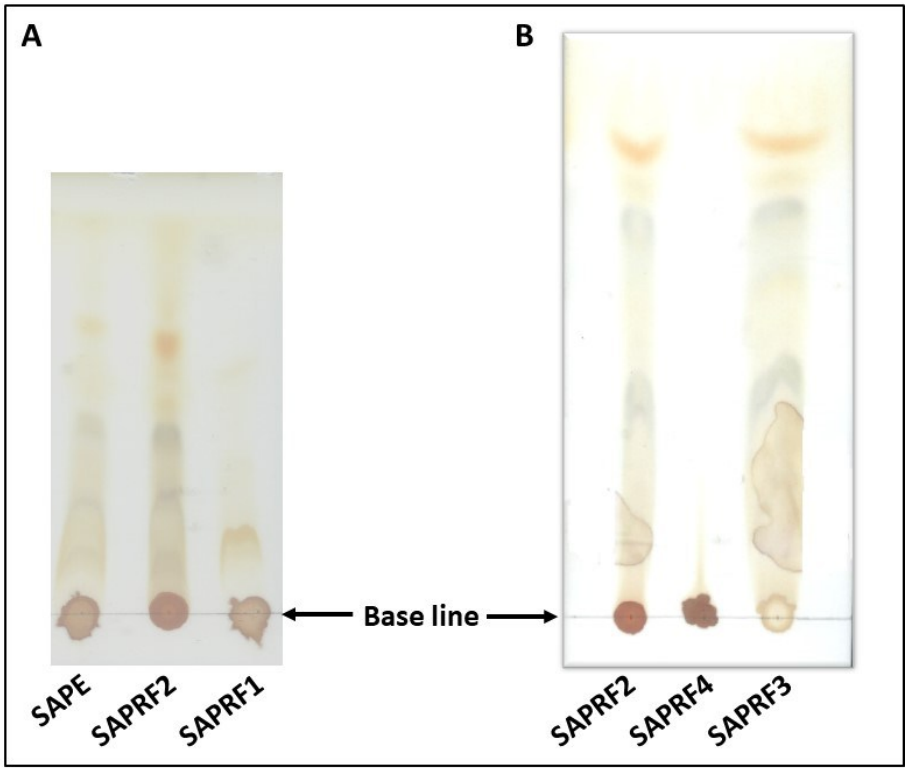

Fig. S1. TLC analysis of SAPE fractionation after the first step (A) and the second step (B) of bioactivity guided fractionation. Chromatograms were developed in chloroform:methanol (8:2 v/v) and revealed with iodine vapor.

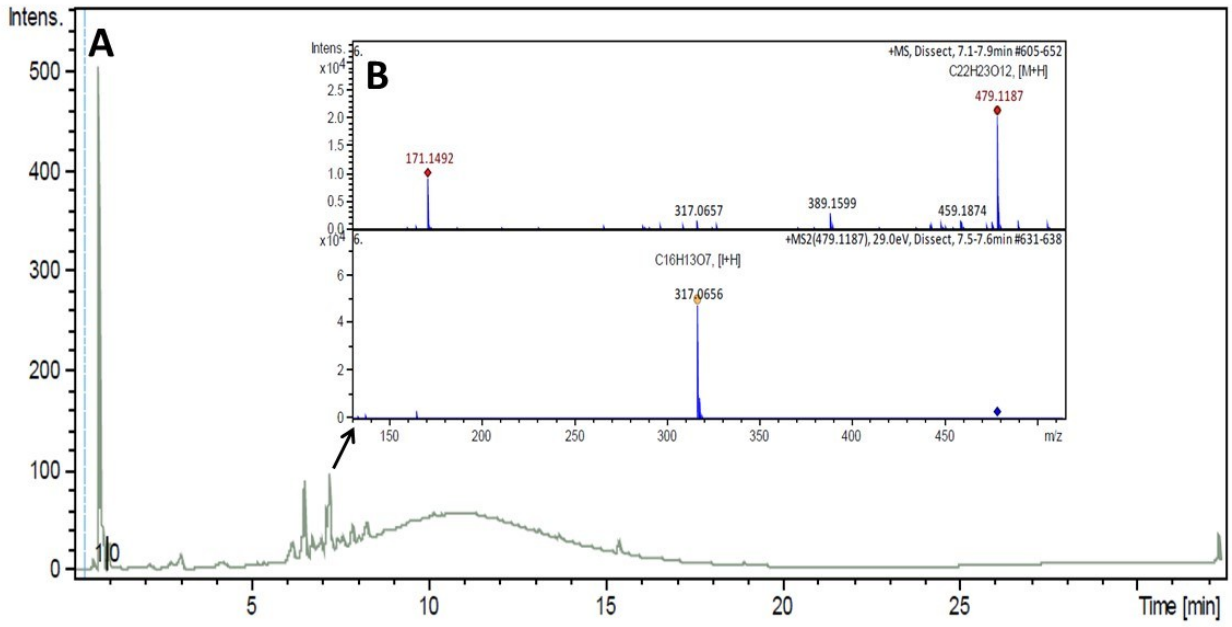

Fig. S2. UPLC-HRMS analysis of SAPRF4 fraction. A, UPLC chromatogram of SAPRF4. B, MS/MS fragmentation spectra of the discriminating mass (m/z = 479.1187).

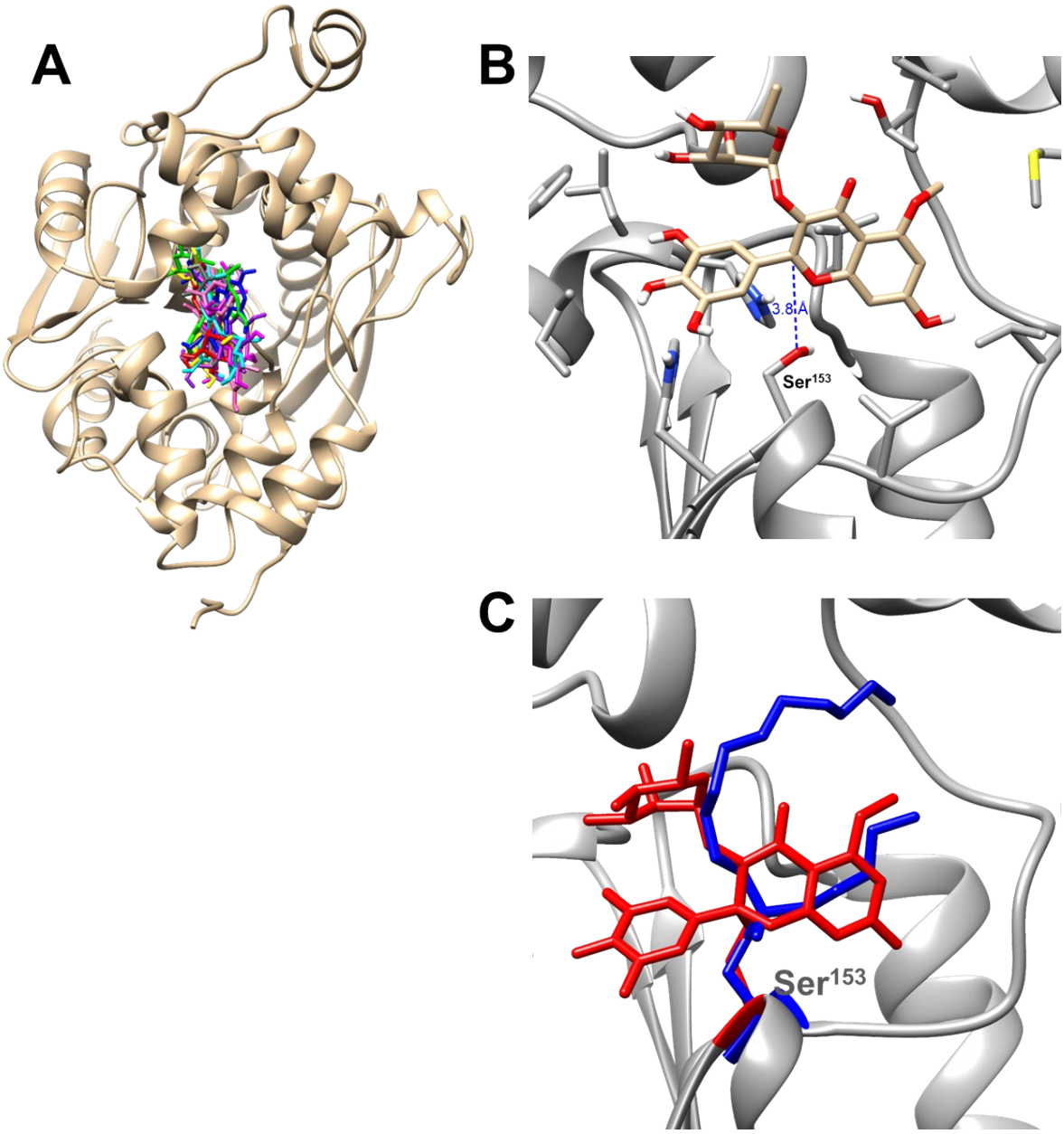

Fig. S3. Visualization of DGL-M5ME binding interaction by molecular docking. A, docked positions of M5ME in the active site of DGL. B, the best matching conformation that exposes the reactive carbon atom of M5ME towards the catalytic Ser^{153} within 3.8 Å. Blue dashes depict a hydrogen bond. C, Superimposition of the DGL C11-carboxymethyl phosphonate (blue) and the M5ME (red) inhibitors.

Table S1. DGL inhibitory activity of various plant extracts. Each plant extract was pre-incubated, at an a_l value of 1 mg, with DGL (1 μM final concentration) for 30 min at 25 °C in the presence of 4 mM NaTDC.

Plant name	Part used	DGL inhibition rate (%)			
		Hexanic extact	Ethyl acetate extract	Ethanolic extract	Aqueous extract
Glycyrrhiza glabra	Roots	19	35	41	0
Illicium verum	Fruits	18	14	81	10
Salvia officinalis	Whole	24	37	0	0
Thymus vulgaris	Whole	18	0	22	0
Rosmarinus officinalis	Whole	18	29	43	10

Table S2. Annotation of major compounds detected in SAPRF4 fraction by UPLC-HRMS.

m/z (Da)	Rt (min)	Empirical formula	Error (ppm)	Isotopic pattern (mSigma)	Compound
118.0862	0.8	$C_5H_{12}NO_2$	0.4	2	-
540.2443	6.5	$C_{26}H_{38}NO_{11}$	-0.7	15.1	-
611.1606	6.6	$C_{27}H_{31}O_{16}$	0.1	0.4	Rutin*
465.1031	6.8	$C_{21}H_{21}O_{12}$	-0.8	4.5	Myricitrin
625.1767	7.2	$C_{28}H_{33}O_{16}$	-0.6	10.6	-
479.1187	7.6	$C_{22}H_{23}O_{12}$	-0.5	12.8	Myricitrin-5-methyl ether
449.1081	8.1	$C_{21}H_{21}O_{11}$	-0.5	4.1	Quercitrin*

* Rutin is the glycoside combining quercetin and the disaccharide rutinose; Quercitrin is a glycoside formed from the flavonoid quercetin.