

Supporting Information

Isolation and Identification of Tyrosinase Inhibitors from marine algae *Enteromorpha sp.*

Authors

Lima Rodrigues^a, Supriya Tilvi^b, Michelle S. Fernandes^c, Sarvesh S. Harmalkar^a, Santosh G. Tilve^a, Mahesh S. Majik^{d,e*}

Dedicated to Prof. B. R. Srinivasan on his 60th Birthday

Affiliations

^aSchool of Chemical Sciences, Goa University, Taleigao Plateau, Goa 403 206, India

^bBio-organic Chemistry Laboratory, CSIR-National Institute of Oceanography, Donapaula, Goa 403 004, India

^cDepartment of Biotechnology, Goa University, Taleigao Plateau, Goa 403 206, India

^dDepartment of Chemistry, Government College of Arts, Science & Commerce, Khandola, Marcela-Goa, 403 107, India; ^eDepartment of Chemistry, DnyanprassarakMandal's College and Research Centre, Assagao-Goa, 403 507, India.

Correspondence

Dr. Mahesh S. Majik

Table of Contents

g. 1S ¹ H NMR spectrum of compound 1	S3
g. 2S ¹³ C NMR spectrum of compound 1	S3
g. 3S DEPT spectrum of compound 1	S4
g. 4S ¹ H NMR spectrum of compound 2	S4
g. 5S ¹³ C NMR spectrum of compound 2	S5
g. 6S DEPT spectrum of compound 2	S5
g. 7S ¹ H NMR spectrum of compound 3	S6
g. 8S ¹³ C NMR spectrum of compound 3	S6
ble 1S Crystallographic data and structure refinement parameters for 4-hydroxycoumarin	S7
ble 2S Bond distances (Å) and angles (°) for 4-hydroxycoumarin(1)	S7
g. 9S A view of the unit cell packing of 4-hydroxycoumarin (1)	S8
g. 10S The H-bonding situation around the lattice water OW1 of 4-hydroxycoumarin (1)	S8

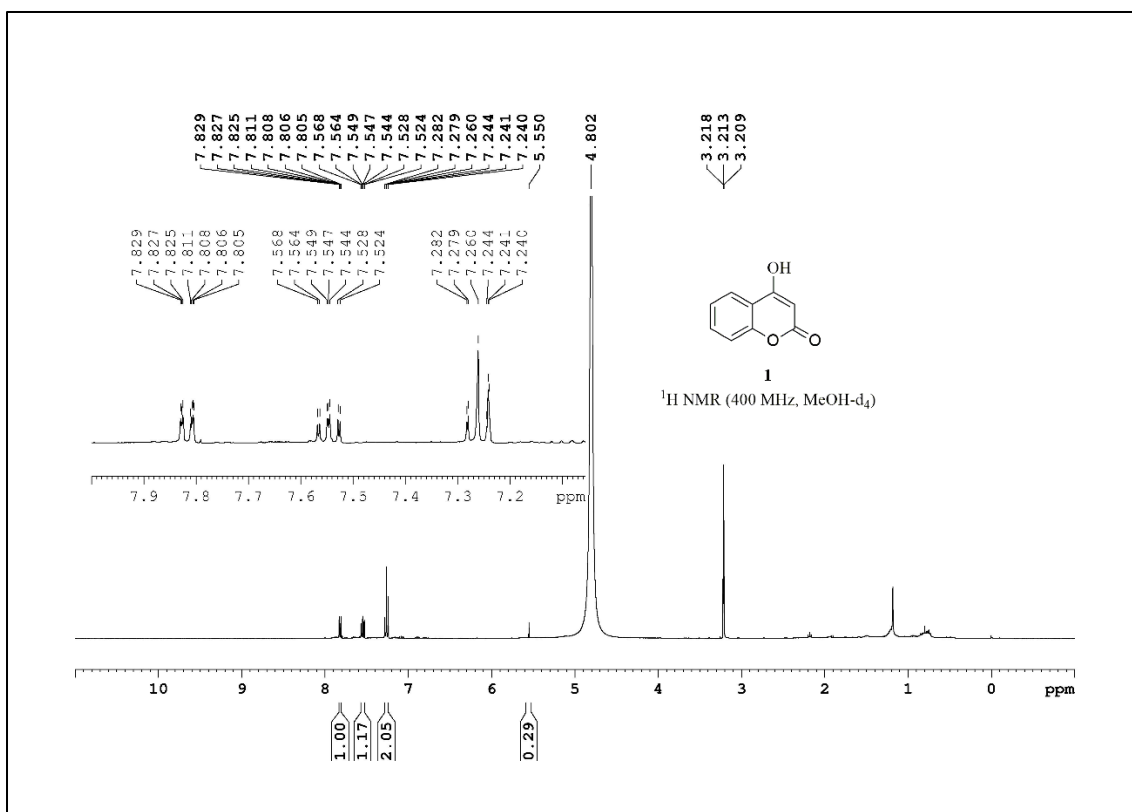


Fig. 1S ¹H NMR spectrum of compound **1**

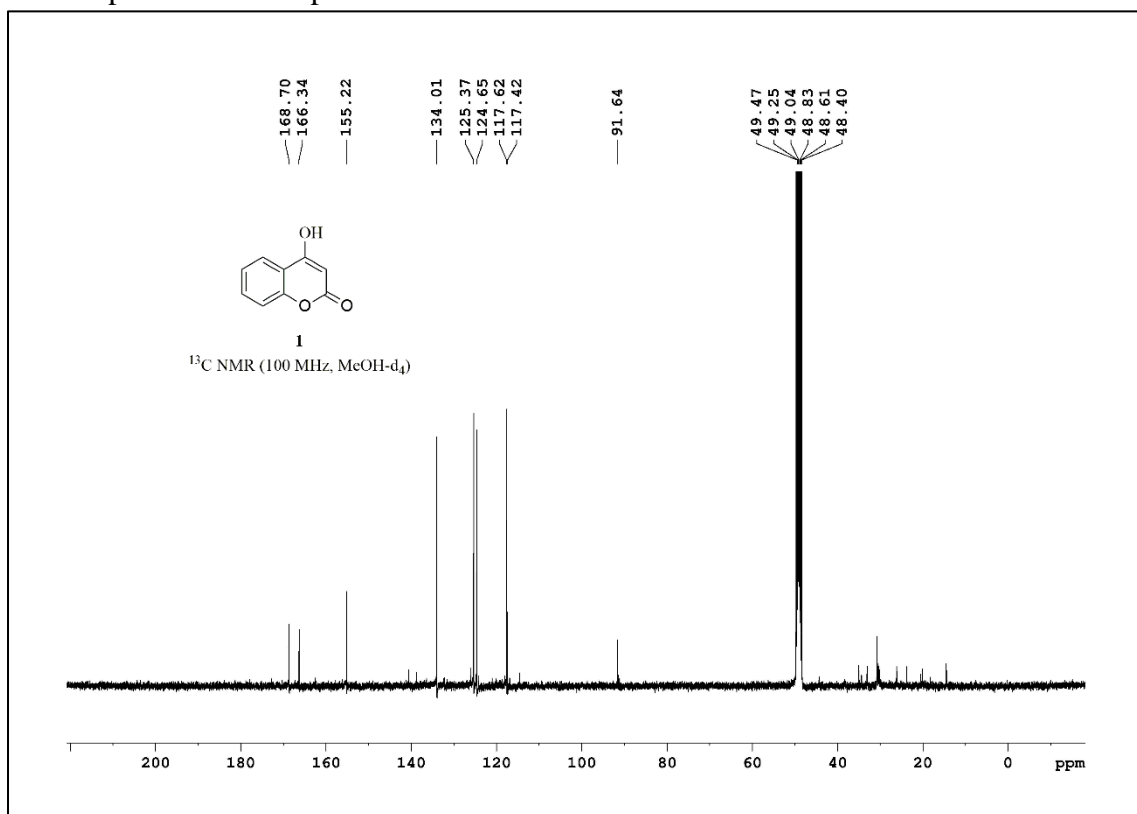


Fig. 2S ¹³C NMR spectrum of compound **1**

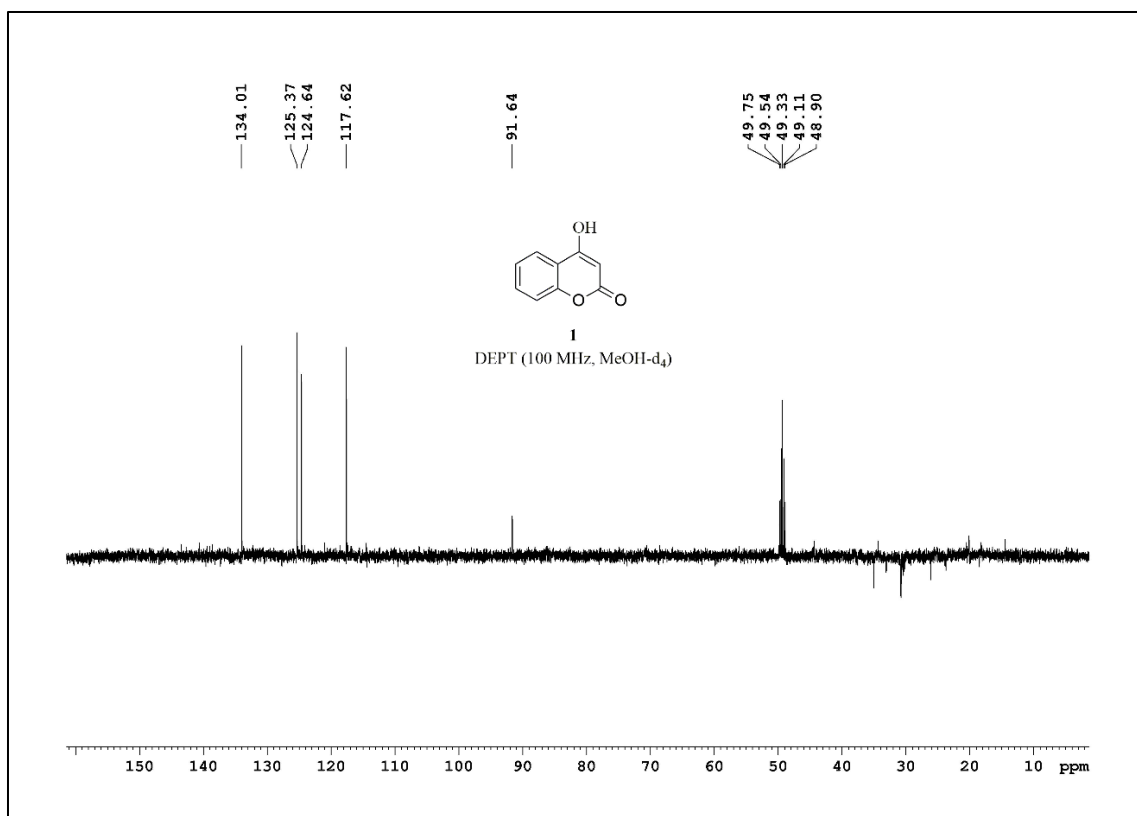


Fig. 3SDEPT spectrum of compound 1

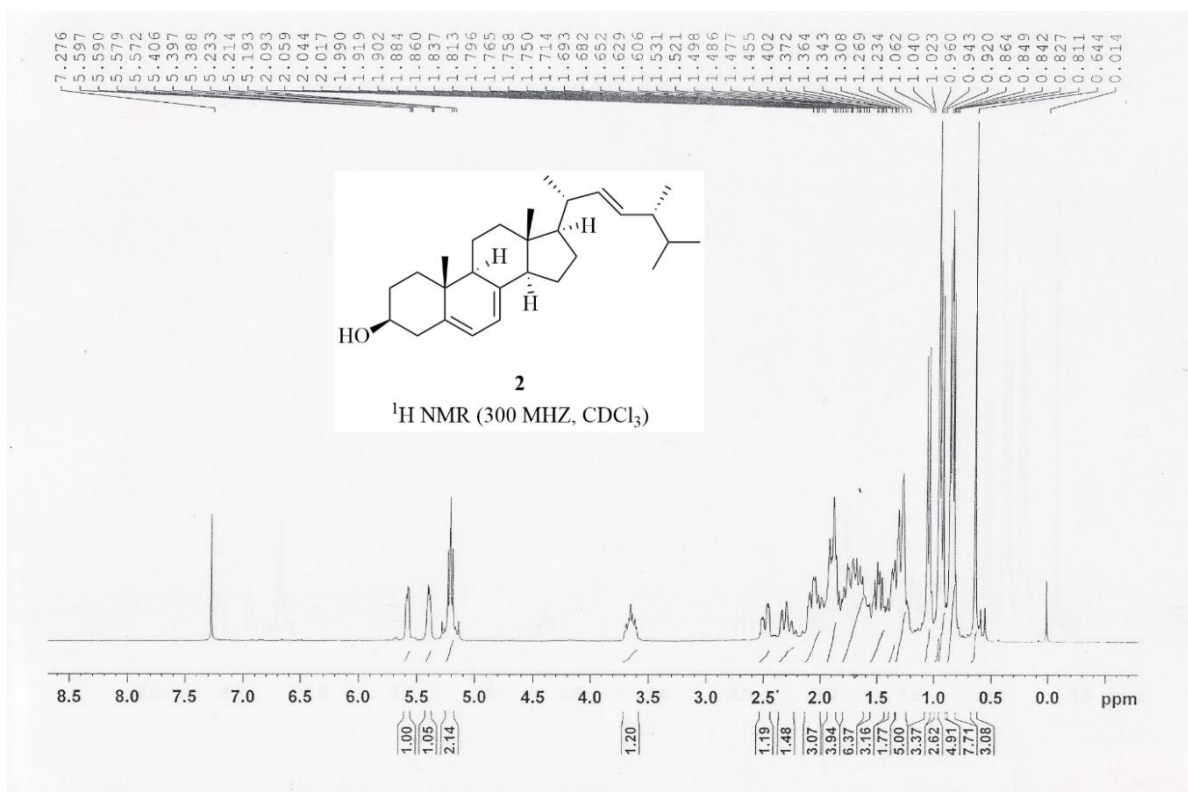


Fig. 4S ¹H NMR spectrum of compound 2

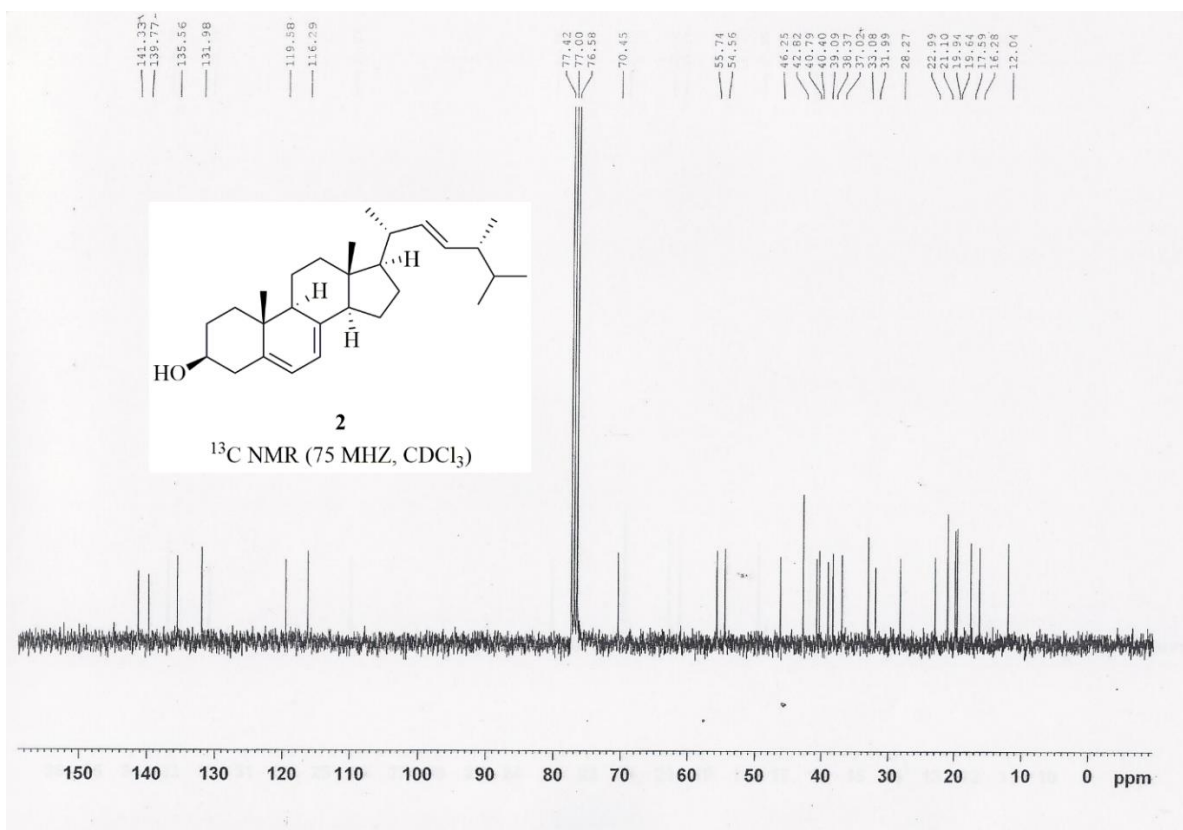


Fig. 5S ¹³C NMR spectrum of compound **2**

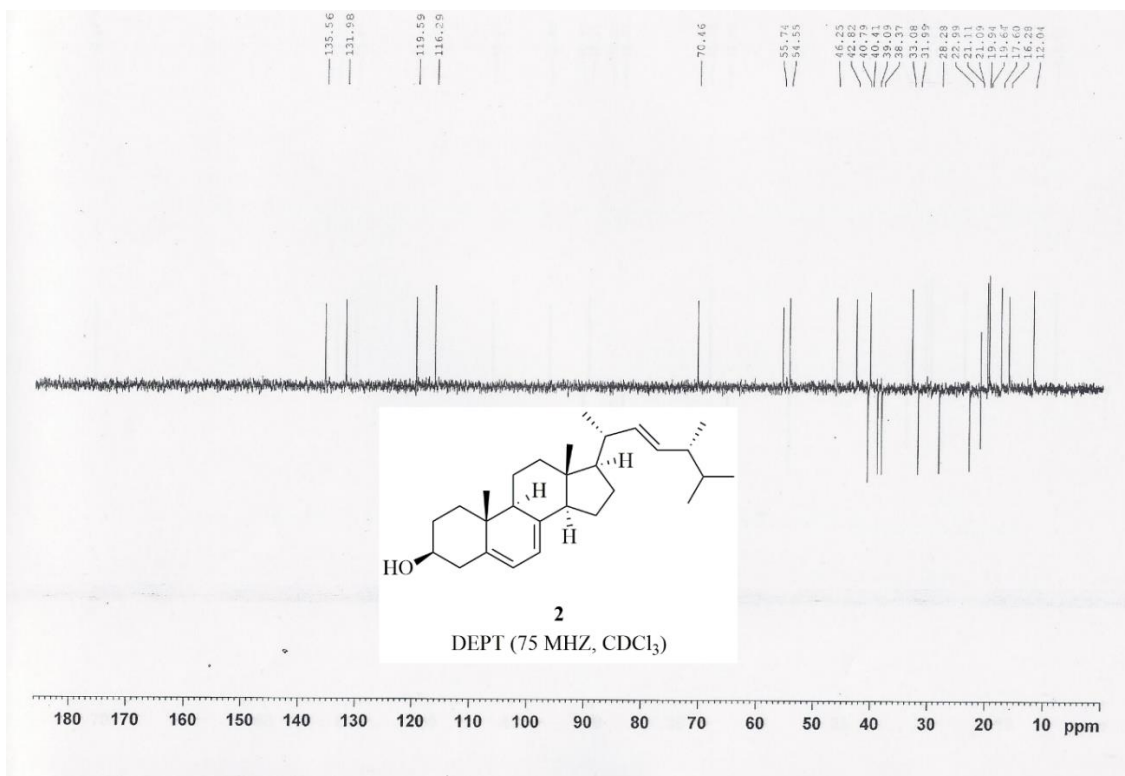


Fig. 6S DEPT spectrum of compound **2**

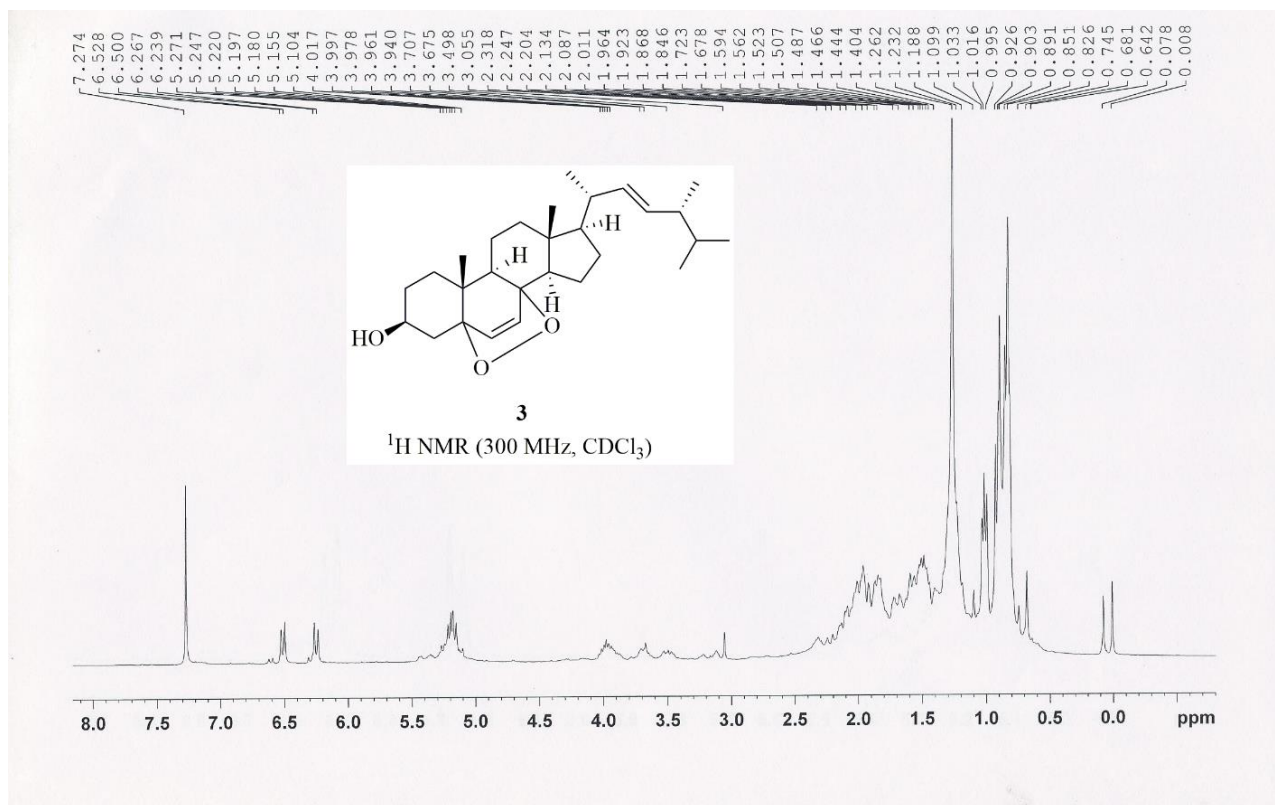


Fig. 7S ¹H NMR spectrum of compound **3**

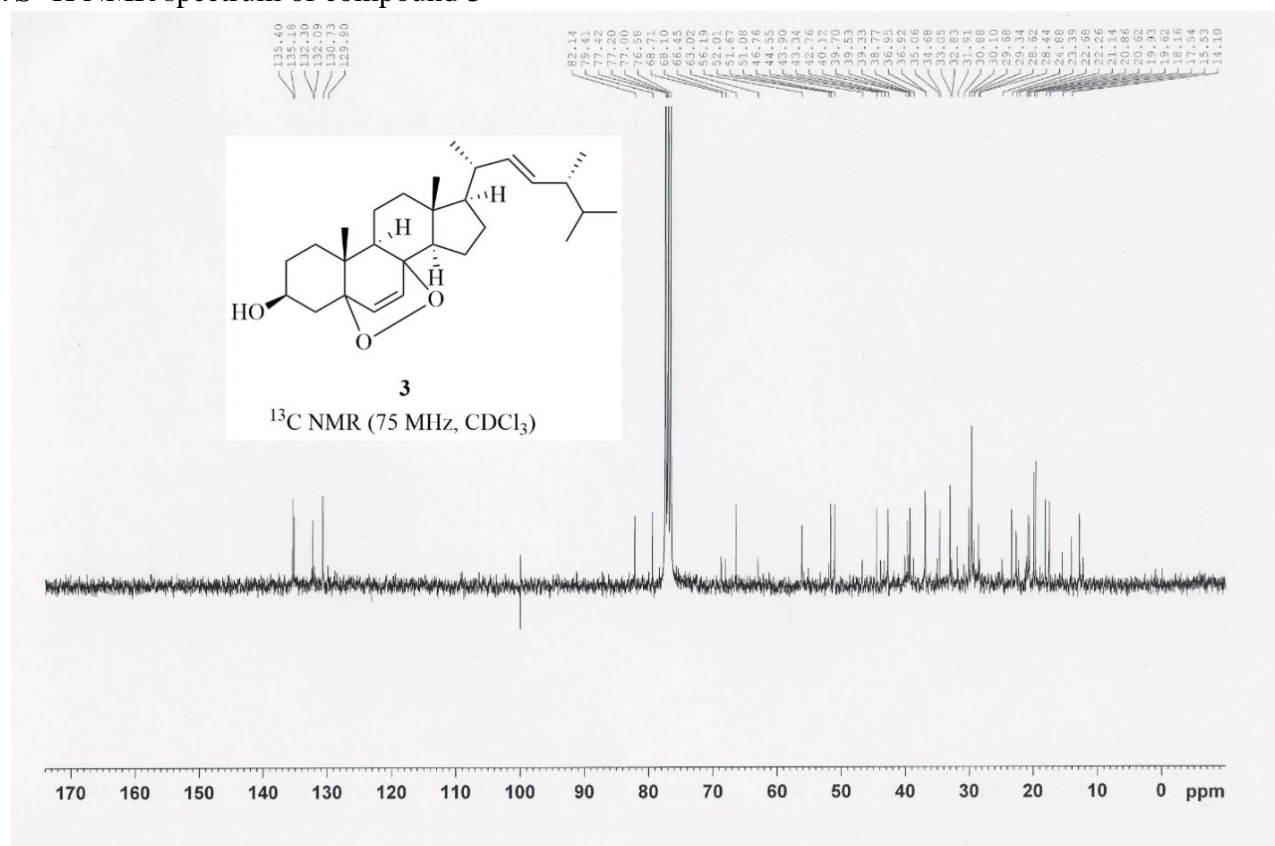


Fig. 8S ¹³C NMR spectrum of compound **3**

Table 1S. Crystallographic data and structure refinement parameters for 4-hydroxycoumarin (**1**).

	1
Chemical formula	C ₉ H ₈ O ₄
<i>M</i> /g mol ⁻¹	180.15
Temp./K	293
Crystal system	Orthorhombic
Space group	<i>P</i> 2 ₁ 2 ₁ 2 ₁
<i>a</i> /Å	6.9209(3)
<i>b</i> /Å	10.0448(4)
<i>c</i> /Å	12.1384(5)
α /°	90
β /°	90
γ /°	90
<i>V</i> /Å ³	843.85(6)
<i>Z</i>	4
<i>D</i> _c /g cm ⁻³	1.418
μ /mm ⁻¹	0.113
<i>R</i>	0.0380(1600)
<i>wR</i>	0.1032(2088)
<i>F</i> (000)	376.0

Table 2S. Bond distances (Å) and angles (°) for 4-hydroxycoumarin(**1**).

O1-C1	1.367(3)
O1-C8	1.378(3)
C1-O2	1.229(2)
C1-C2	1.405(3)
C2-C3	1.355(3)
O3-C3	1.324(2)
C3-C9	1.437(3)
C9-C8	1.381(3)
C9-C4	1.398(3)
C8-C7	1.383(3)
C7-C6	1.372(3)
C6-C5	1.376(4)
C5-C4	1.374(3)
C1-O1-C8	121.0(17)
O2-C1-O1	114.4(19)
O2-C1-C2	126.6(2)
O1-C1-C2	119.0(18)
C3-C2-C1	121.1(2)
O3-C3-C2	124.6(2)
O3-C3-C9	115.5(18)
C2-C3-C9	119.8(19)
C8-C9-C4	118.4(2)
C8-C9-C3	117.8(18)
C4-C9-C3	123.7(19)
O1-C8-C9	121.1(19)
O1-C8-C7	116.8(2)
C9-C8-C7	122.0(2)
C6-C7-C8	118.2(2)
C7-C6-C5	121.2(2)
C4-C5-C6	120.2(2)
C5-C4-C9	119.9(2)

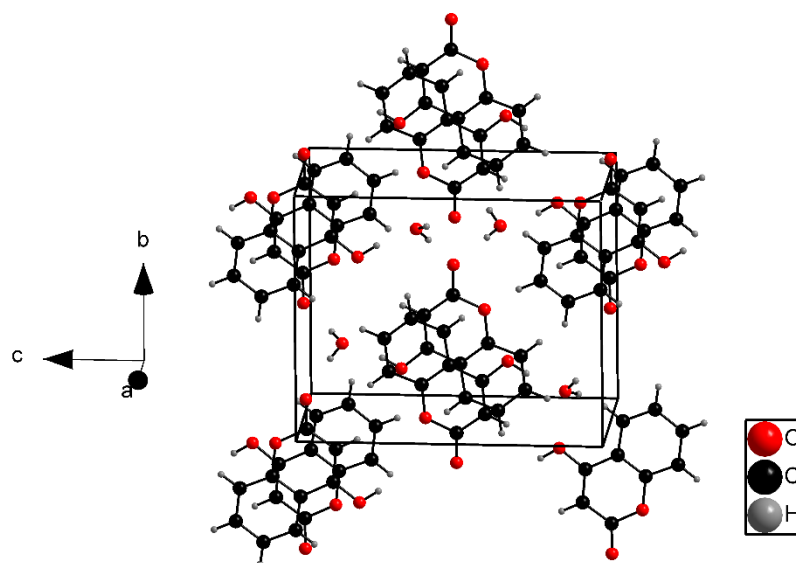


Fig.9S A view of the unit cell packing of 4-hydroxycoumarin (**1**).

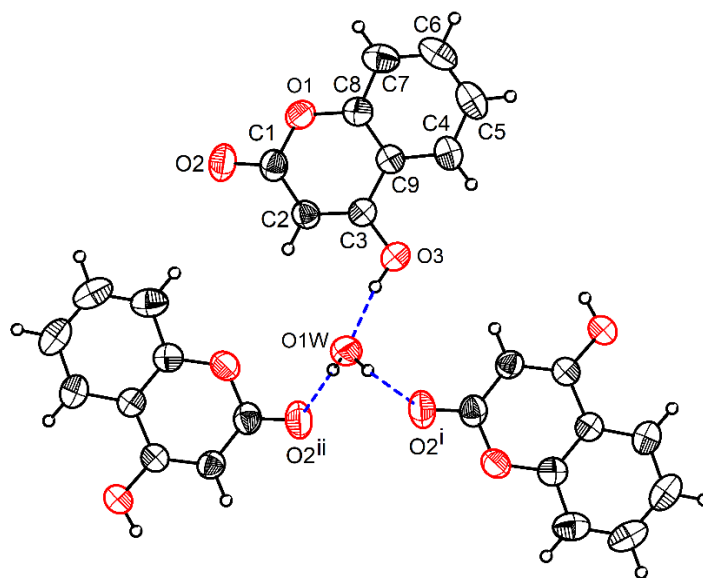


Fig. 10SThe H-bonding situation around the lattice water OW1. Each lattice water serves to link three molecules of the organic compound with the aid of an intramolecular H-acceptor bond and two intermolecular H-donor bonds. Symmetry code: i) $1-x, -0.5+y, 1.5-z$ ii) $0.5-x, 1-y, 0.5+z$