

Inhibition of Autophagy Increases Cell Death in HeLa Cells through Usnic Acid Isolated from Lichens

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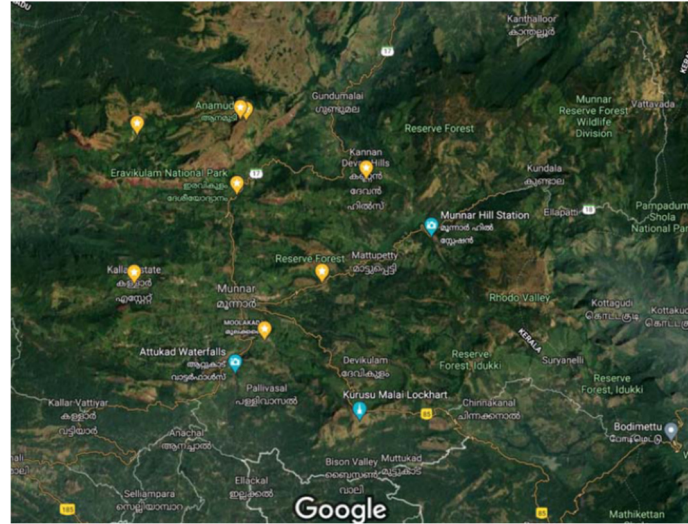
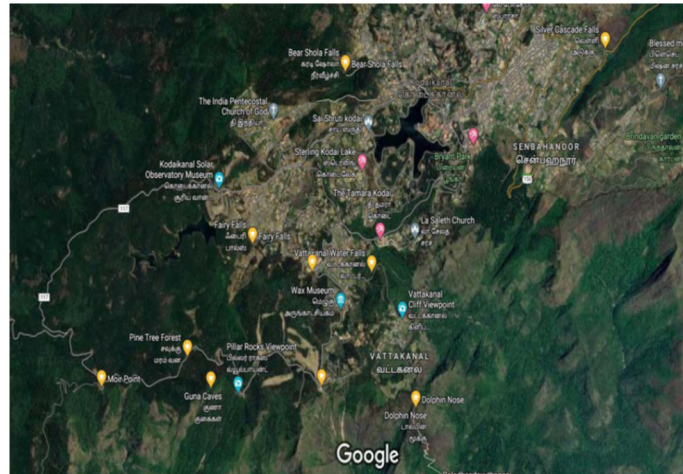
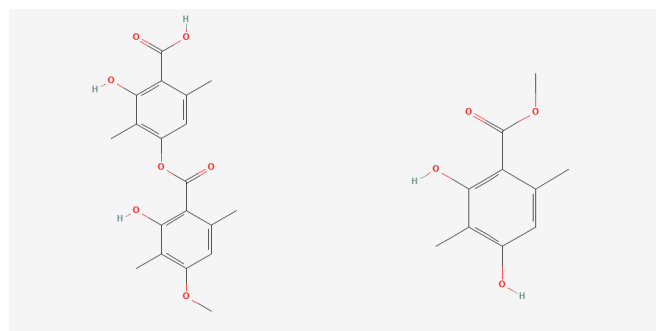
A**B**

Figure S1: Sampling locations of lichens in Munnar and Kodaikanal, India



Barbatic acid $C_{19}H_{20}O_7$ Atraric acid $C_{10}H_{12}O_4$

Figure S2: Structure of barbatic acid and atraric acid

Table S1: Diversity and distribution pattern of lichens isolated from the western Ghats, India

S. no.	Lichen name	Location	Description	Spot test
1.	<i>Parmelia sulcata</i>	Bear Shola falls, Kodaikanal	Growing on the bark of the tree	KC-P+yellow
2.	<i>Usnea cornuta</i>	Bear Shola falls, Kodaikanal	Growing on the bark of the tree	KC+pale yellowP+orange yellow e
3.	<i>Parmelia andinum</i>	Guna caves, Kodaikanal	Growing on the bark of the tree	KC-P+orang
4.	<i>Parmotrema perlatum</i>	Dolphin nose, Kodaikana	Growing on the bark of the tree	KC-P-
5.	<i>Usnea sp.</i>	Dolphin nose, Kodaikana	Growing on the bark of the tree	KC+pale yellowP+orange
6.	<i>Collema flaccidum</i>	Pine tree/Moir point, Kodaikanal	Growing on the bark of the tree	KC-P-
7.	<i>Hypogymnia physodes</i>	Pine tree/Moir point, Kodaikanal	Growing on the bark of the tree	KC-P+yellow
8.	<i>Cladonia macilenta</i>	Dolphin nose, Kodaikana, Kodaikanal	Growing on the bark of the tree	KC+P+yellow
9.	<i>Heterodermia indica</i>	Bear Shola falls, Kodaikanal	Growing on the rocks	KC-P+yellow

10.	<i>Cladonia macilenta</i>	Anamudi, Munnar	Growing on the bark of the tree	KC+P+ yellow
11.	<i>Parmelia sulcata</i>	Kannan devan Hills	Growing on the tree in tea garden	KC-P+yellow
12.	<i>Parmelia sp.</i>	Kannan devan Hills, Munnar	Growing on the tree in tea garden	KC-P+yellow
13.	<i>Collema flaccidum</i>	Kallar estate, Munnar	Growing on the tree in tea garden	KC-P-
14.	<i>Leptogium sp.</i>	Eravikulam National Park, Munnar	Growing on the tree in tea garden	KC-P-
15.	<i>Hypogymnia physodes</i>	Eravikulam National Park, Munnar	Growing on the bark of the tree	KC-P+yellow
16.	<i>Physcia sp.</i>	Anamudi, Munnar	Rocks	KC-P-

Table S2: Zeta potential of usnic acid (UA) treated HeLa cells in the presence and absence of chloroquine (+/-CQ) after 24h of treatment

UA (μM)	Zeta potential (mV)
Control	-19.08±0.81
25	-20.01±1.08
25+CQ	-23.15±0.35
50	-23.17±1.33
50+CQ	-29.78±3
C+CQ	-20.45±0.66
UA (1mM)	8.05±0.98
CQ	-6.02±1.2