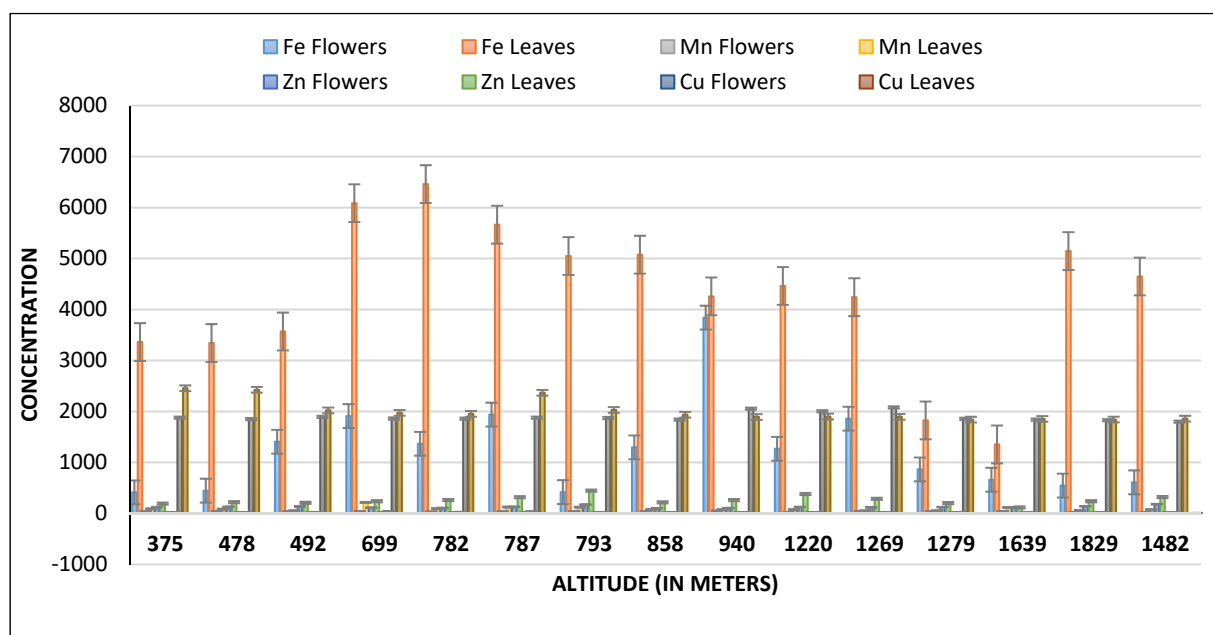


### Supplementary Information

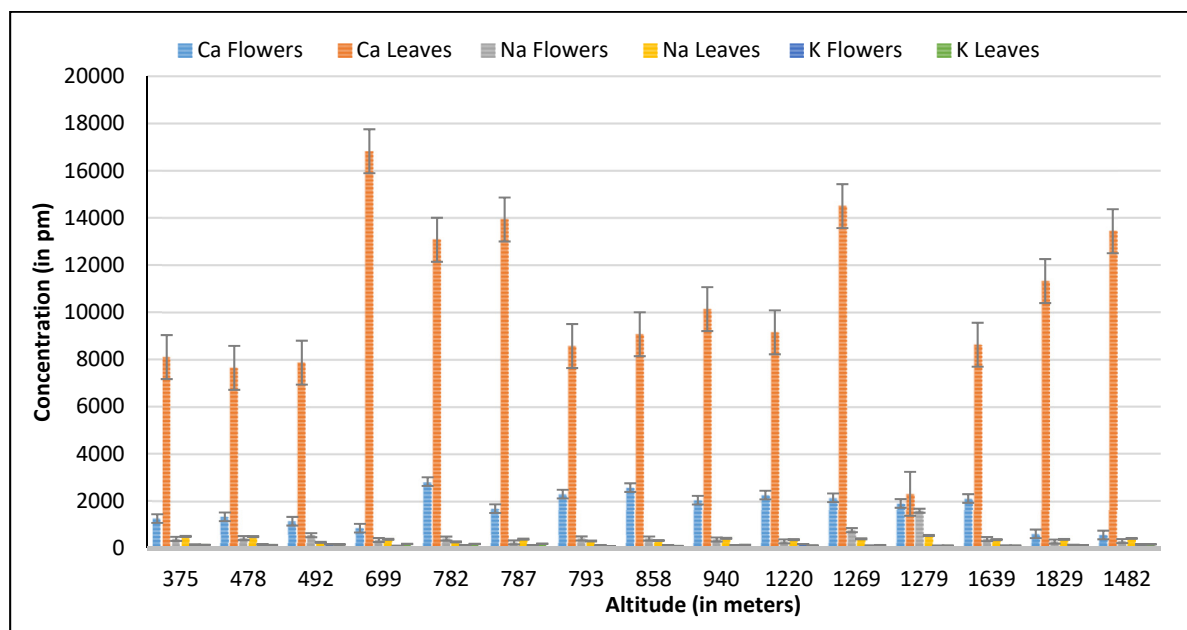
**Supplementary Table S1.** Voila species study area: Altitude, plant development phase, time of sampling; habitats, collection sites in Himachal Pradesh.

Code	Altitude	Species	Habitat	Plant Phase	Percentage yield	Location of collection	Coordinates	
<b>DKR V1</b>	375	<i>Viola canescens</i>	Forest-shady locations	Flowering	35.66	<b>Berthin, Bilaspur</b>	31.4188° N,	76.6427° E
<b>DKR V2</b>	478	<i>Viola canescens</i>	Forest-shady locations	Flowering	41.08	<b>Telkar, Hamirpur</b>	31.6242° N,	76.5692° E
<b>DKR V3</b>	492	<i>Viola canescens</i>	Forest-shady locations	Flowering	37.83	<b>Berru, Hamirpur</b>	31.6795° N,	76.5387° E
<b>DKR V4</b>	699	<i>Viola canescens</i>	Forest-shady locations	Flowering	35.78	<b>Ghumarwin, Bilaspur</b>	31.4491° N,	76.7048° E
<b>DKR V5</b>	782	<i>Viola canescens</i>	Road sides	Flowering	44.61	<b>Bijni, Mandi</b>	31.7460° N,	76.9441° E
<b>DKR V6</b>	787	<i>Viola canescens</i>	Forest-shady locations	Flowering	33.11	<b>Chabutra, Hamirpur</b>	31.7699° N,	76.4888° E
<b>DKR V7</b>	793	<i>Viola canescens</i>	High mountain pasture	Flowering	30.5	<b>Paddar, Mandi</b>	31.8794° N,	76.9160° E
<b>DKR V8</b>	858	<i>Viola canescens</i>	Road sides	Flowering	30.24	<b>Pandoh, Mandi</b>	31.6676° N,	77.0536° E
<b>DKR V9</b>	940	<i>Viola canescens</i>	Road sides	Flowering	36.47	<b>Batour, Mandi</b>	31.7344° N,	76.8865° E
<b>DKR V10</b>	1220	<i>Viola canescens</i>	High mountain pasture	Flowering	32.02	<b>Chauntra, Mandi</b>	32.0138° N,	76.7495° E
<b>DKR V11</b>	1269	<i>Viola pilosa</i>	High mountain pasture	Flowering	28.96	<b>Kamand, Mandi</b>	31.7781° N,	76.9974° E
<b>DKR V12</b>	1279	<i>Viola canescens</i>	Forest-shady locations	Flowering	25.92	<b>Kullu</b>	31.9592° N,	77.1089° E

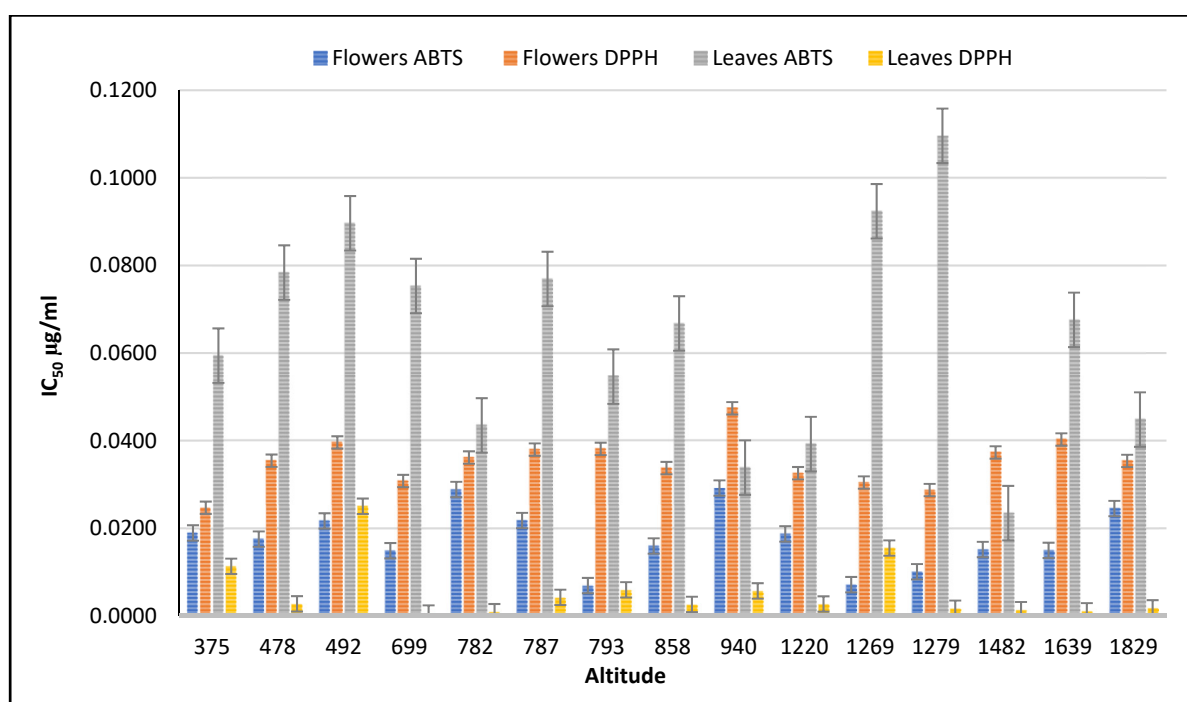
<b>DKR V13</b>	148 2	<i>Viola canescens</i>	High mountain pasture	Flowering	44.07	<b>Chandpur, Kangra</b>	32.1215° N, 76.5654° E
<b>DKR V14</b>	163 9	<i>Viola canescens</i>	High mountain pasture	Flowering	31.48	<b>Gulera, Chamba</b>	32.5527° N, 76.1260° E
<b>DKR V15</b>	182 9	<i>Viola pilosa</i>	High mountain pasture	Flowering	28.95	<b>Barot, Mandi</b>	32.0410° N, 76.8402° E



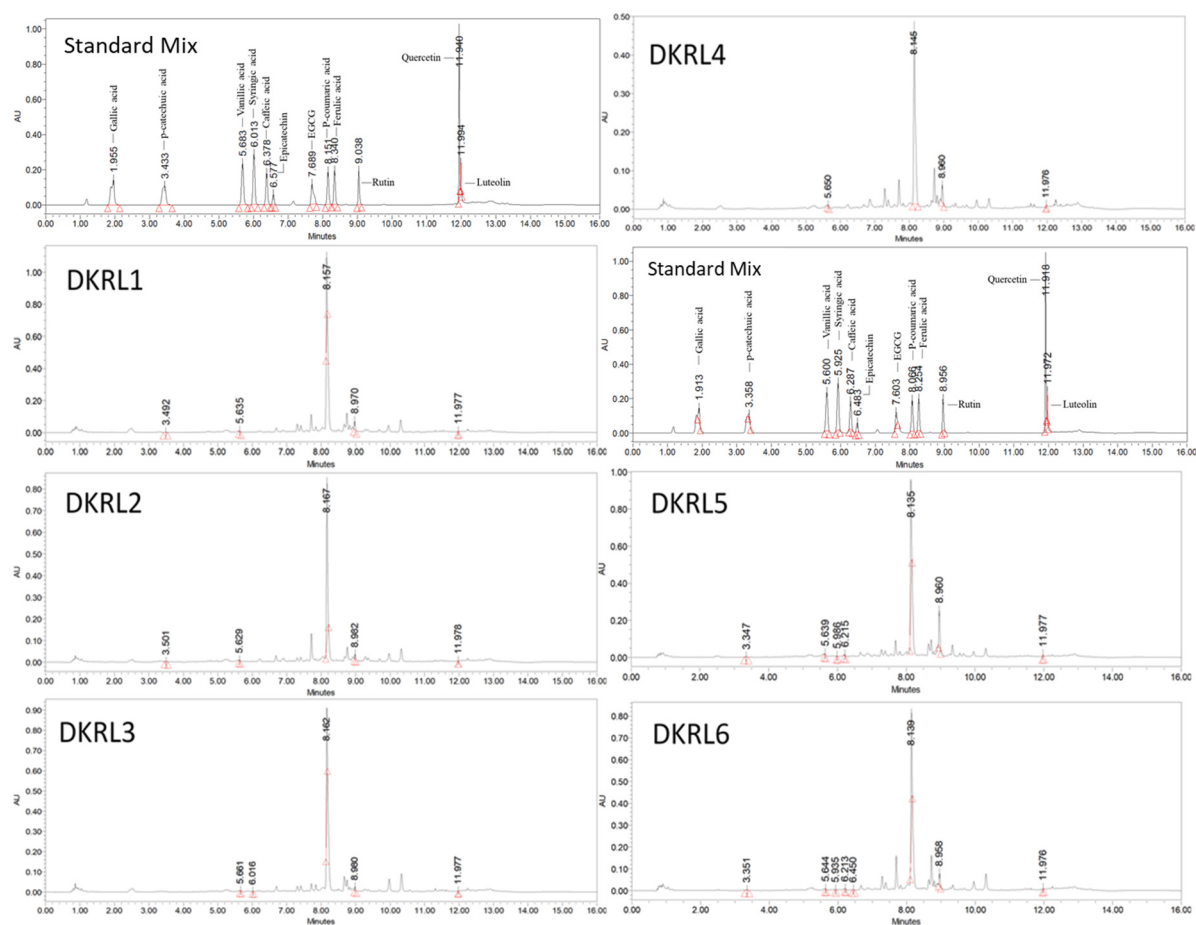
**Supplementary Figure S1.** Micro-nutrients in Viola species at gradient altitudes (in ppm)

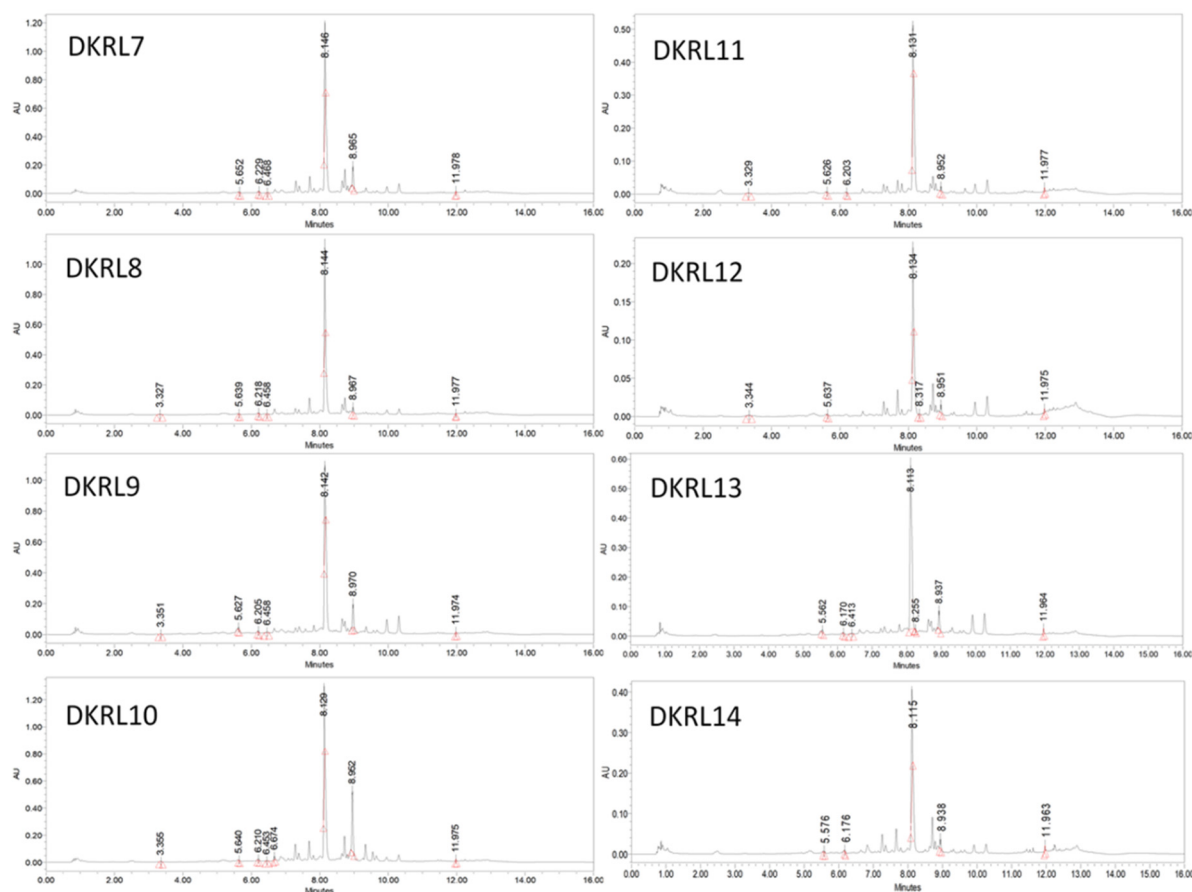


**Supplementary Figure S2.** Macro-nutrients in Viola species at gradient altitudes (in ppm)

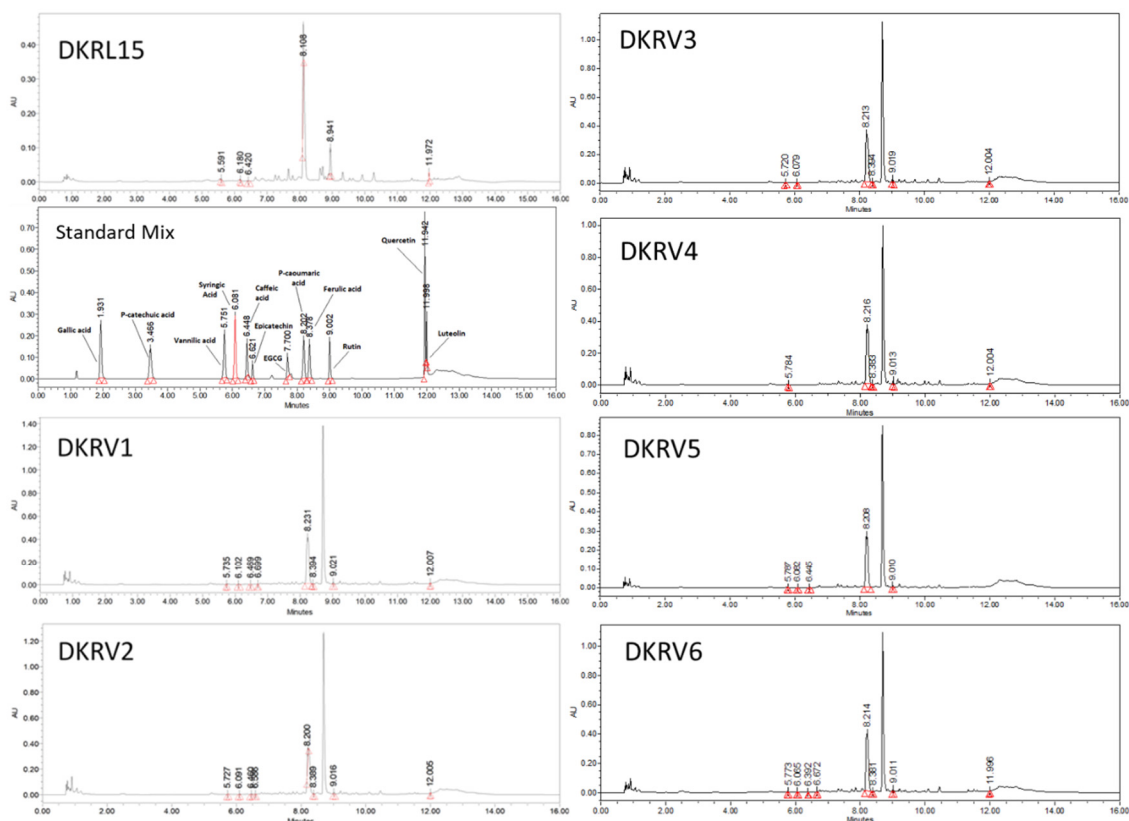


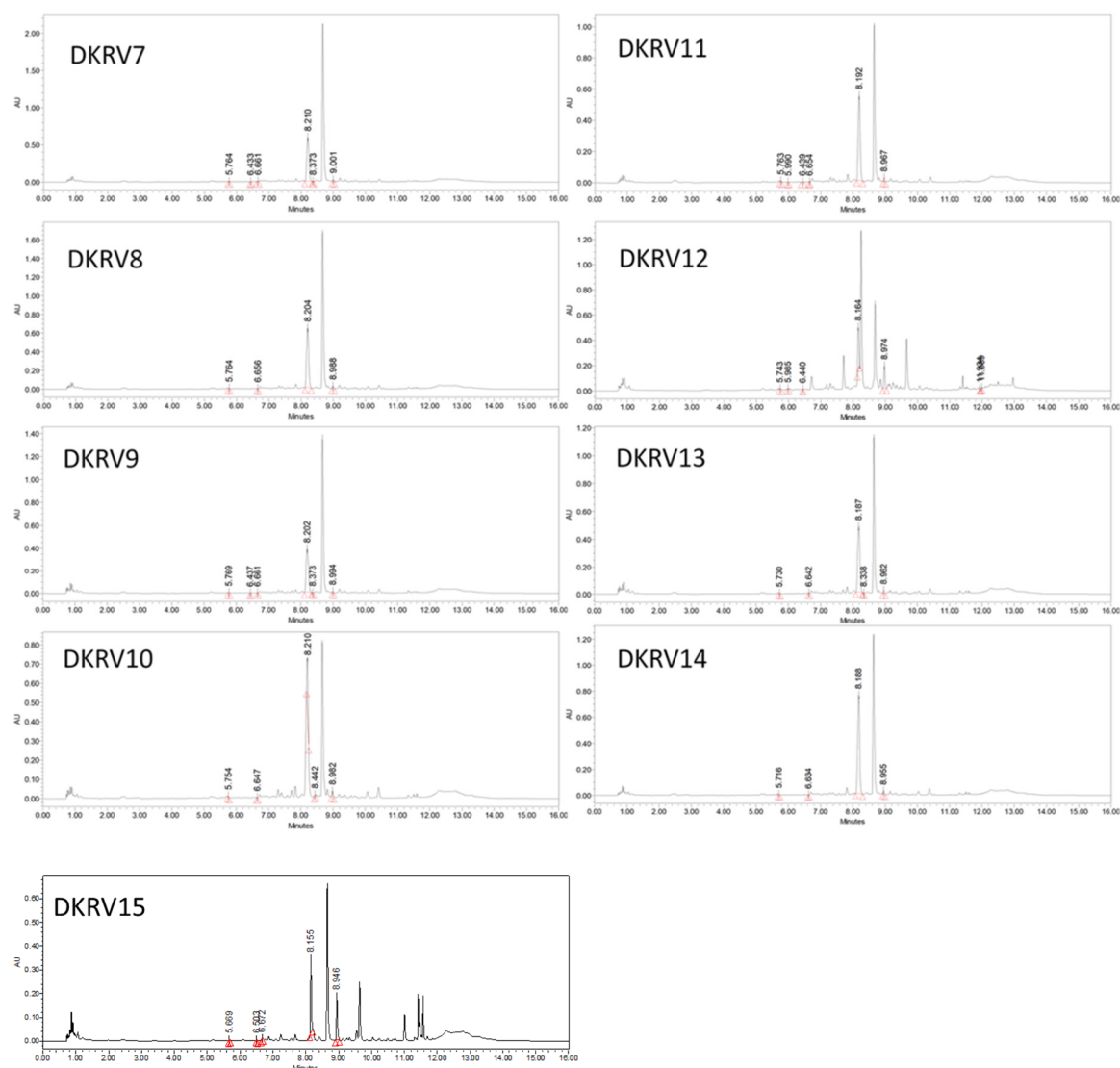
**Supplementary Figure S3.** ABTS & DPPH based antioxidant activity of (IC<sub>50</sub> µg/ml) of Viola species.





**Supplementary Figure S4a.** UPLC-DAD Chromatograms of flowers samples of *Viola* species (DKRL1-DKRL15).

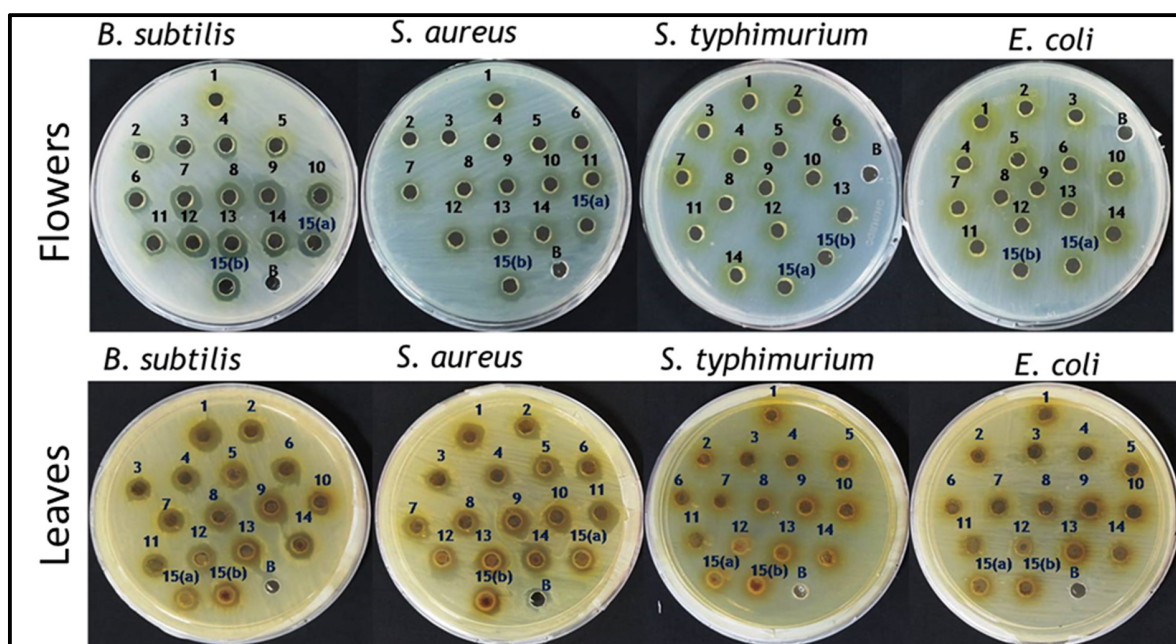




**Supplementary Figure S4b.** UPLC-DAD Chromatograms of flowers samples of *Viola* species (DKRV1-DKRV15).

**Supplementary Table S2.** MIC's of the most effective plant extract against *S. aureus* & *B. subtilis*.

Zone of inhibition (mm)																
Gram +ve bacteria																
Conc. (mg)	<i>B. subtilis</i>				<i>S. aureus</i>				<i>B. subtilis</i>				<i>S. aureus</i>			
	L1	L7	L13	L14	L1	L7	L13	L14	V7	V9	V12	V13	V7	V9	V12	V13
0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	1	0	0.5	1	1	0.5	1	0	1.5	1	0.5	0	0	0	0
5	1.5	2	1	1	1.5	1.5	1	2	2	2	3	1	0	1	1	0.5
6	4	3	4	4	3	3	4	4	5	5	5	5	1	2	2.5	2.5



**Supplementary Figure S5.** Antimicrobial activity (Zone of inhibition of flowers and leaves) of *Viola* species.