**Table S1: Effect of ethanol extracts on percentage cell viability of human tonsil epithelial cells.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test compounds | Cell viability (%) | | | | | | | |
| **0.1 μg/mL** | **0.5 μg/mL** | **1 μg/mL** | **5 μg/mL** | **10 μg/mL** | **25 μg/mL** | **50 μg/mL** | **100 μg/mL** |
| PGN+LTA | 96.8±1.1ab | ND | ND | ND | ND | ND | ND | ND |
| Licorice R | 99.0±1.6a | 99.1±1.6a | 98.0±1.7a | 98.4±1.7a | 97.1±1.7a | 32.6±1.3ef | 24.4±0.7f | 22.5±1.2fg |
| Sage L | 99.2±1.2a | 99.8±0.4a | 96.2±6.0a | 86.2±1.1c | 33.1±1.7a | 29.5±0.8ef | 24.4±0.9f | 25.3±1.8f |
| Echinacea S | 82.8±1.3c | 82.8±3.7c | 95.8±3.7a | 83.0±2.1c | 52.5±2.6d | 26.2±1.3ef | 20.9±0.6g | 20.4±1.0g |
| Echinacea F | 97.0±0.0a | 97.1±2.0a | 96.1±3.1a | 97.1±1.1a | 97.5±5.5a | 27.5±0.1ef | 18.2±1.3g | 18.2±0.6g |
| Oregano FS | 96.9±1.5a | 96.9±1.9a | 96.9±1.0a | 86.9±1.0c | 85.3±0.8c | 68.4±0.1d | 67.7±3.2a | 25.2±2.0f |
| Theme FS | 95.6±3.2a | 95.6±3.2ab | 96.6±3.2ab | 95.6±2.1a | 92.5±0.8b | 90.4±1.9b | 82.8±2.8c | 78.9±0.6c |
| Barberry R | 97.5±0.5a | 97.5±0.7a | 95.5±0.4ab | 97.5±1.0a | 97.7±0.4a | 92.8±0.4b | 98.2±0.2a | 87.8±1.5bc |
| Slippery elm IB | 95.2±1.5ab | 93.4±1.1b | 89.7±1.0b | 82.7±1.0c | 76.0±3.0c | 23.9±0.4fg | 20.7±1.2g | 21.0±1.7g |
| Clove FB | 96.1±1.1a | 97.5±1.9a | 96.5±1.9ab | 97.5±1.3a | 98.7±3.2a | 73.0±8.4c | 36.0±1.6e | 34.7±2.5e |
| Ginger Rh | 98.5±1.1a | 98.9±0.6a | 98.9±1.6a | 98.9±1.2a | 98.8±5.3a | 91.4±2.4b | 96.4±1.6a | 40.1±1.0e |
| Olive L | 99.8±1.3a | 96.8±1.6ab | 98.8±1.7a | 98.8±2.0a | 95.4±7.2a | 94.4±5.8ab | 20.7±1.2g | 21.0±1.7g |
| Geranium L | 95.2±1.3ab | 85.1±2.0c | 46.1±2.0de | 41.1±0.0e | 36.8±0.8 a | 28.0±1.9ef | 31.8±2.7a | 21.4±2.0g |
| Echinacea L | 97.9±1.1a | 97.3±1.4a | 97.9±1.5a | 97.9±0.6a | 88.0±2.0b | ND | 42.0±1.6a | 28.1±1.5ef |
| Danshen R | 98.2±1.0a | 95.9±1.1ab | 98.9±1.0a | 98.9±1.1a | 65.3±1.5d | ND | 26.2±2.7f | 18.8±1.4g |
| Nemesulide | 97.1±1.2a | 97.4±1.0a | 95.8±1.8ab | 95.8±1.8ab | 95.7±4.5a | 96.6±5.0a | 89.9±2.1b | 86.0±2.3bc |

**Cells were treated with various concentration of test compounds for 24 hr. Cell viability (%) was calculated relative to the control of 0.05% DMSO. Values of the same column are expressed as mean±SD (n=3), Tukey’s test (p≤ 0.05). The value with different letters indicating the significant difference. ND: not determined; F: flowers; FB: flower bud; FS: flowering shoots; IB: inner bark; L: leaves; Rh: rhizome; R: roots; S: stem.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test compounds | Cell viability (%) | | | | | | | |
| **0.1 μg/mL** | **0.5 μg/mL** | **1 μg/mL** | **5 μg/mL** | **10 μg/mL** | **25 μg/mL** | **50 μg/mL** | **100 μg/mL** | |
| PGN+LTA | 96.4±1.6ab | ND | ND | ND | ND | ND | ND | ND | |
| Licorice R | 98.7±1.0a | 96.4±1.6a | 97.1±1.0a | 80.7±1.8c | 95.0±3.5ab | 97.5±1.0a | 97.7±1.9a | 98.2±1.3a | |
| Oregano FS | 97.8±1.1a | 98.7±1.1a | 98.7±1.0a | 89.4±5.1b | 90.2±1.9b | 88.1±3.8b | 97.8±2.0a | 25.2±4.0e | |
| Thyme FS | 98.2±0.5a | 97.8±1.1a | 98.0±1.0a | 84.2±3.6c | 93.2±4.2ab | 96.4±2.9 ab | 96.6±1.0a | 94.1±0.4b | |
| Barberry R | 99.3±2.0a | 98.2±0.5a | 98.1±0.0a | 99.1±3.2a | 99.6±0.3a | 95.3±0.7a | 99.2±3.5a | 96.4±3.8a | |
| Echinacea S | 99.1±1.1a | 99.3±2.0a | 97.1±0.1a | 97.4±1.0a | 96.3±0.5a | 91.5±1.3b | 95.5±2.7a | 58.3±5.3d | |
| Echinacea F | 98.1±1.1a | 99.1±1.1a | 96.1±1.1a | 98.9±0.9a | 95.6±4.5a | 91.2±1.3b | 97.2±2.9a | 97.3±3.3a | |
| Echinacea L | 99.1±1.5a | 98.1±1.1a | 97.0±1.2a | 96.0±0.6a | ND | ND | 99.7±1.9a | 99.6±3.9a | |
| Sage L | 97.1±0.8a | 99.0±1.5a | 97.0±1.1a | 97.6±1.9a | ND | ND | 103.5±0.9a | 99.7±1.9a | |
| Clove FB | 98.5±1.7a | 98.4±0.0a | 98.9±0.3a | 98.3±1.1a | ND | ND | 92.7±3.4b | 87.3±4.3b | |
| Ginger Rh | 99.0±1.1a | 98.1±0.1a | 98.4±1.0a | 98.7±0.5a | ND | ND | 98.6±4.8a | 98.3±2.8a | |
| Olive L | 97.2±1.0a | 97.0±1.7a | 96.0±1.6a | 96.2±1.0a | ND | ND | 99.7±1.9a | 94.6±2.4b | |
| Geranium L | 97.1±0.2a | 98.2±1.2a | 99.0±1.1a | 93.1±1.0ab | ND | ND | 45.7±6.1d | 25.2±1.5e | |
| Slippery elm IB | 99.1±1.3a | 98.0±1.5a | 96.3±1.7a | 97.1±1.3a | ND | ND | 99.7±4.8a | 99.6±2.4a | |
| Nemesulide | 99.4±1.0a | 98.0±1.6a | 98.1±1.4a | 96.0±1.1a | 95.7±4.5a | 96.6±3.0ab | 89.9±2.1b | 86.0±3.0bc | |

**Table S2: Effect of aqueous extracts on percentage cell viability of human tonsil epithelial cells.**

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**Cells were treated with various concentration of test compounds for 24 hr. Cell viability (%) was calculated with relative to the control of 0.05% DMSO. Values are expressed as mean±SD (n=3), Tukey’s test (p≤ 0.05). The value with different letters indicating the significant difference. ND: not determined; F: flowers; FB: flower bud; FS: flowering shoots; IB: inner bark; L: leaves; Rh: rhizome; R: roots; S: stem.**