Solubility Testing Procedure:

Solubility testing was performed by adding 500 µL of solvent to 250 mg of extract, mixing by vortex and sonication, and then adding additional solvent. At regular intervals, the sample is centrifuged, the supernatant is removed, and the pellet is weighed. This process is repeated until the pellet is dissolved completely, or until the pellet reaches constant weight. If the pellet remains, it is then dried to constant weight, and that information is used to adjust the final solubility.

Solutions are refrigerated overnight and then brought back to room temperature. If the material is no longer fully in solution, the vial is sonicated for up to 15 minutes to attempt to re-solubilize the material.

| **Botanical Extract** | **95% Ethanol solubility (~ mg/mL)** | **Mixing protocol\*** | **Sonication time required after Refrigeration\*\* (min)** | **Comments** |
| --- | --- | --- | --- | --- |
| Ephedra | 15 | Vortex Sonicate | 10 |  |
| Yohimbe | 19 | Vortex Sonicate | 5 |  |
| Kratom | 17 | Vortex Sonicate | 5 |  |
| Goldenseal | 45.5 | Vortex Sonicate | 0 |  |
| Kava | 59 | Vortex Sonicate | 5 |  |
| Milk Thistle | 12.5 | Vortex Sonicate Centrifuge, remove supernatant | Solution becomes cloudy after refrigeration, does not re-solubilize after 15 minutes of sonication. | Pellet remains after material is in solution. Concentration corrected for presence of residual solids. |
| Ginseng | 3.5  | Vortex Sonicate Centrifuge, remove supernatant | Solution becomes cloudy after refrigeration, does not re-solubilize after 15 minutes of sonication. | Pellet remains after material is in solution. Concentration corrected for presence of residual solids. |
| Blue Cohosh | 25.5  | Vortex Sonicate | 5 |  |
| Comfrey | 5.8 | Vortex Sonicate | 10 |  |
| Aristolochia fangchi | 5 | Vortex Sonicate | Solution becomes cloudy after refrigeration, does not re-solubilize after 15 minutes of sonication. |  |
| Green tea | 167 | Vortex Sonicate | 0 |  |
| Ashwagandha | 8 | Vortex Sonicate Centrifuge, remove supernatant | 15 | Pellet remains after material is in solution. Concentration corrected for presence of residual solids. |
| Usnea lichen | 11.4 | Vortex Sonicate Centrifuge, remove supernatant | Solution becomes cloudy after refrigeration, does not re-solubilize after 15+ minutes of sonication. | Pellet remains after material is in solution. Concentration corrected for presence of residual solids. |

\*Vortexing is typically done in 30-second intervals, recommend 2 x 30 seconds as needed. Sonication time should be limited to 10-15 minutes to avoid heating the solution. Centrifugation at 2,000 rpm for 5 minutes where indicated.

\*\*Solution refrigerated overnight, then brought back to room temperature prior to sonication.