### Appendix 3. Pharmacological Activities of *Rhizome phragmitis*

| Pharmacological activity | Extract/Compound | Animal/Cell model | Result | Dose | Treatment course | Reference |
|--------------------------|------------------|-------------------|--------|------|-------------------|-----------|
| Anti-inflammatory activity | Stigmasta-3,5-dien-7-one | LPS-activated RAW246.7 macrophages | Reduced expressions of NO, PGE₂, TNF-α, IL-1β and IL-6. | 550 and 100 μg/mL | 24 h | (4) |
|                          | Stigmasta-3,5-dien-7-one | SLE mice | Decreased expressions of IL-1β, IL-6, TNF-α and IFN-γ in serum. | 50 mg/kg | 24 h | (22) |
|                          | Acidic polysaccharide from Rhizoma phragmitis | LPS-activated RAW246.7 macrophages | Decreased expression of nitric oxide. | 1, 5, 25, 100, 200 and 300 μg/mL | 24 h | (23) |
| Antioxidant activity     | *Rhizoma phragmitis* polysaccharide | Fatigue model mice induced by forced swimming | Creatine kinase decreased with prolonged swimming time. | 1 g/kg | 14 d | (24) |
|                          | *Rhizoma phragmitis* polysaccharide | Aging mice | Serum CAT, SOD, GSH-PX activity was enhanced and atrophy of thymus, spleen and brain tissue due to aging was alleviated. | 0.1, 0.2 and 0.4 g/kg | 30 d | (25) |
| Antibacterial activity   | *Rhizoma phragmitis* oligosaccharides | *Staphylococcus aureus, Bacillus subtilis, Escherichia coli* | Bacterial growth was inhibited. | 100 μg/mL | 48 h | (26) |
| Antiviral activity       | Extracts from *Phragmites* leaves | MDBK cells infected with bovine herpesvirus type 1 | Significant reduction in virus replication. | 1, 10, 100 and 200 μg/mL | 24 h | (27) |
| Activity of Improving    | *Rhizoma phragmitis* polysaccharide | Diabetes mice | The levels of glycated serum proteins, triglycerides, and total cholesterol were significantly reduced. | 100 and 200 mg/kg | 21 d | (28) |
| glycolipid metabolism | Extracts from *Rhizoma phragmitis* | HeLa cells | Extracts had a better activation effect on PPARγ compared with 0.5 μg/mL rosiglitazone. | 0, 12.5, 25, 50, 100, 200 and 400 μg/mL | 24 h | (29) |
|-----------------------|-----------------------------------|------------|-----------------------------------------------------------------|------------------------------------------|------|------|
|                       | Extractions from the aerial part of *Phragmites australis* | Tetraoxine-induced diabetes mice | Total cholesterol, triglycerides and LDL were significantly decreased and HDL was increased. | 150 and 300 mg/kg | 14 d | (30) |
|                       | Extractions from *Rhizoma phragmitis* | STZ-induced diabetes mice | Liver glycogen synthesis was promoted by enhancing liver glycogen synthase. | 1.25 and 5.0 g/kg | 5 w | (31) |
| Analgesic activity    | Extractions from the aerial part of *Phragmites australis* | Swiss-albino mice | Mice have a significantly increased tolerance to pain at a dose of 400 mg/kg. | 200 and 400 mg/kg | 30, 60, 90 and 120 min | (32) |
| Liver protection      | Extractions from the *Rhizoma* and the aerial part of *Phragmites australis* | CCI 4-induced liver fibrosis rat | Significant improvement in biochemical indicators and tissue structure of liver fibrosis. | 500 mg/kg | 6 w | (33) |
|                       | Extractions from *Rhizoma phragmitis* | CCI 4-induced liver fibrosis mice | Decrease in serum transaminase and improvement in liver tissue structure. | 100, 200 and 500 mg/kg | 5 d | (34) |
| Lung protection       | Fresh *Rhizoma phragmitis* decoction | Chronic bronchitis rat | The serum levels of TGF-β and IL-6, inflammatory exudation and structural damage in the lung were improved. | 7.5 and 15 g/kg | 20 d | (35) |
|                       | Fresh *Rhizoma phragmitis* freeze-dried powder | 16HBE cells treated with the extracts of cigarette smoke | The expressions of IL-6 and TGF-β in 16HBE cells were significantly inhibited and no cytotoxicity was observed. | 0, 50, 100, 200, 400 and 800 μg/mL | 24 h | (35) |
| Kidney protection     | Extractions from *Rhizoma phragmitis* | Renal stone rat | The excretion of calcium oxalate was significantly increased and the expressions of OPN and SOD in the kidney were decreased. | 1.0, 1.5 and 2.0 g/kg | 28 d | (36) |
| Category          | Description                                                                 | Model/Condition                                      | Dose/Duration       | Notes                                                                 |
|-------------------|-----------------------------------------------------------------------------|------------------------------------------------------|---------------------|----------------------------------------------------------------------|
| Skin protection   | Ointment containing Rhizoma phragmitis polysaccharide                        | Atopic dermatitis mice                               | 5% ointment applied | 3 w                                                                   |
|                   | Hydrogel preparation containing Rhizoma phragmitis polysaccharide           | Female subjects aged 20 to 26 years                  | 20 mg               | 0, 30, 60, 120, 240 and 360 min                                        |
| Safety            | Extracts from Rhizoma phragmitis                                            | Human dermal fibroblasts (HDF cells), melanocytes    | 25-200 μg/mL        | 24 h                                                                  |
|                   | Extracts from the aerial part of Phragmites australis S. typhimurium, E. coli | No genotoxicity was found.                           | 50-5000 μg/plate and| 50±2 h                                                                |
|                   | Extracts from the aerial part of Phragmites australis                        | No genotoxicity was found.                           | 125-500 μg/mL       | 6 h                                                                   |
| Toxic side effect | Extracts from Rhizoma phragmitis                                             | ICR male mice                                        | 1250-5000 mg/kg     | 2 d                                                                   |
|                   | Extracts from the aerial part of Phragmites australis                        | Diabetes mice                                        | 5000 mg/kg          | 28 d                                                                  |
