

- UV-vis, FT-IR,  $^1\text{H}$  NMR and ICP-MS techniques were used in multi-pattern fingerprint analysis of Radix Oryzae Glutinosae (ROG) for the first time.
- Hierarchical cluster analysis and canonical discriminant analysis were introduced to interpret the results of multi-pattern fingerprint.
- *In vitro* studies revealed that all ROG samples displayed antioxidant activity for the first time.
- Pollution status examination and evaluation for heavy metals and human health risk assessment for ROG samples were performed for the first time.