**Highlights of the work**

-Reflux extraction followed up SPE clean-up process was performed for rutin in *L. pumila*.

-Reflux extraction increased about two times of the rutin content

-Sample clean-up by SPE could improve the rutin content in the fractionated plant extract.

-80 % methanol as the optimal eluent system in SPE could produce the highest yield of rutin.

-Rutin was found to contribute to the free radical scavenging activity significantly.