**Highlights:**

* Hesperidin and neohesperidin have higher quantity in *M. longofolia* extracts
* A total 45 essential and 42 phenolic compounds were detected at optimal conditions
* Menthone, pulegone, piperitone as well as menthone-pulegone oxide were isolated
* The highest inhibition of lipid peroxidation was observed from isolated menthone
* Antioxidant properties were analyzed for extracts and isolated components