Supporting Information

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Chemical Composition, Antibacterial, Antioxidant and Cytotoxic Activities of the Essential Oil of *Dianella ensifolia*

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S1: *Isolation and Identification of the Essential Oils*

Aerial parts of the plant material were dried in the shade at room temperature (about 25 °C) and hydro-distillation was used to isolate the essential oils from 300 g of air-dried plant samples using a Clevenger apparatus for 3 h. The yield was calculated in % (v/w) of dry plant material. The obtained essential oil was extracted with diethyl ether, dried over anhydrous sodium sulphate and stored in airtight container at 4 °C until use.

The GC-FID and GC-MS analysis were carried out using an Agilent 6890 gas chromatograph which was equipped with a flame ionization detector (FID) and HP-5MS capillary column (30 m × 0.25 mm × 0.25 μm film thickness). Analysis conditions and identification of the oil components are similar to our earlier studies [1]. Identification of compounds was based on retention indices (relative to C_8-C_{30} *n*-alkanes, under the same experimental conditions), computer matching their mass spectra with NIST 14 and Wiley 10 library data, and comparisons of their Kovats retention indices with reference libraries (Adams, 2017; Andriamaharavo, 2014; Babushok, 2011) [2, 3, 4]. Percentage composition was computed from GC peak areas on HP-5MS column without applying correction factors.

S2: *Antibacterial Activity Test*

The *in vitro* antibacterial activity of the essential oil was determined against two gram-positive bacteria, *Staphylococcus aureus* (ATCC 6538), *Bacillus subtilis* (ATCC 6633) and two gram-negative bacteria, *Escherichia coli* (ATCC 25922), and *Pseudomonas aeruginosa* (ATCC 27853) by using the agar-disc diffusion and broth micro-dilution methods (MIC and MBC) previously described by us [1].

S3: *Antioxidant Activity Test*

The essential oil was subjected to screening for the antioxidant activity by three methods namely DPPH (2,2-diphenyl-1-picrylhydrazyl) radical-scavenging assay, ABTS (2,20-azinobis-3-ethylbenzothiazoline-6-sulphonate) radical cation scavenging assay and ferric reducing antioxidant power (FRAP) assay according to previously published procedures [1,5].

S4: *Cytotoxic Activity Test*

The *in vitro* cytotoxic activity of the essential oil was evaluated in the cell lines HepG2 and MCF-7 using the MTT method previously described by us [1]. Cytotoxicity was expressed as the concentration of the essential oil producing 50% inhibition of cell growth (IC_{50}). All tests were performed in triplicate.

S5: References

[1] X. D. Su, Yang Gao, Y. X. Xiang, P. X. Lai and X. Xing (2019). Chemical composition and biological activities of the essential oil from *Aristolochia fordiana* Hemsl, *Rec*. *Nat*. *Prod*. **13**, 346-354.

[2] R. P. Adams (2017). Identification of essential oil components by gas chromatography/mass spectrometry, 4.1th edition, Allured Publishing, Carol Stream, Illinois.

[3] N. R. Andriamaharavo (2014). Retention Data. NIST Mass Spectrometry Data Center, NIST Mass Spectrometry Data Center.

[4] V.I. Babushok, P.J. Linstrom and I.G. Zenkevich (2011). Retention indices for frequently reported compounds of plant essential oils, *J. Phys. Chem. Ref. Data*. **40**, 1-47.

[5] L. J. Mao, X. Y. Xie, Y. Gao and P. X. Lai (2019). Chemical composition, antibacterial and antioxidant activities of essential oil from *Leonurus pseudomacranthus* Kitag, *Rec*. *Nat*. *Prod*. **13**, 91-95. (in supporting information file)