



# Bioprospecting Endolichenic Fungi from Mangrove Ecosystem of Negombo lagoon, Sri Lanka

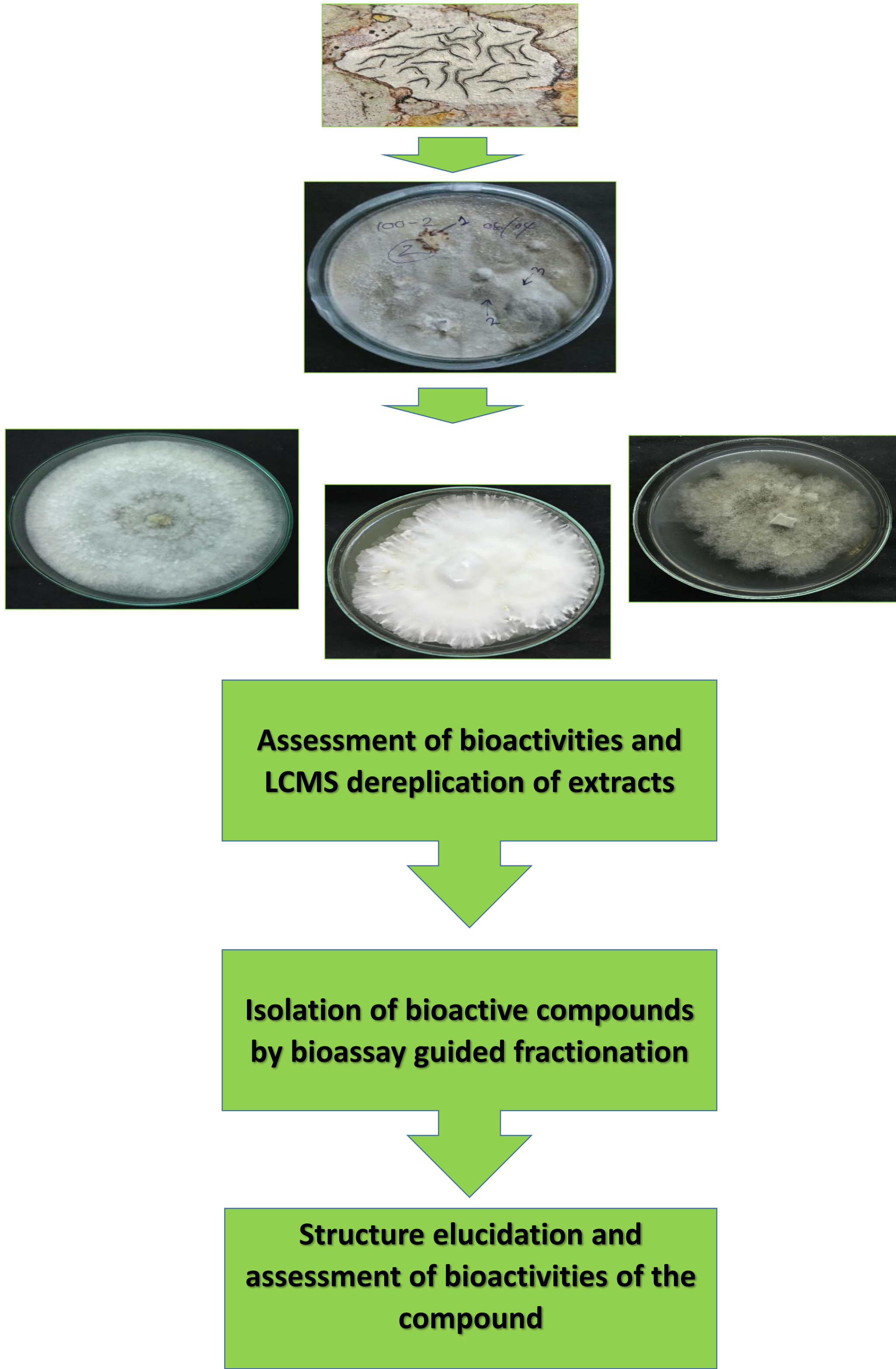


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## Background

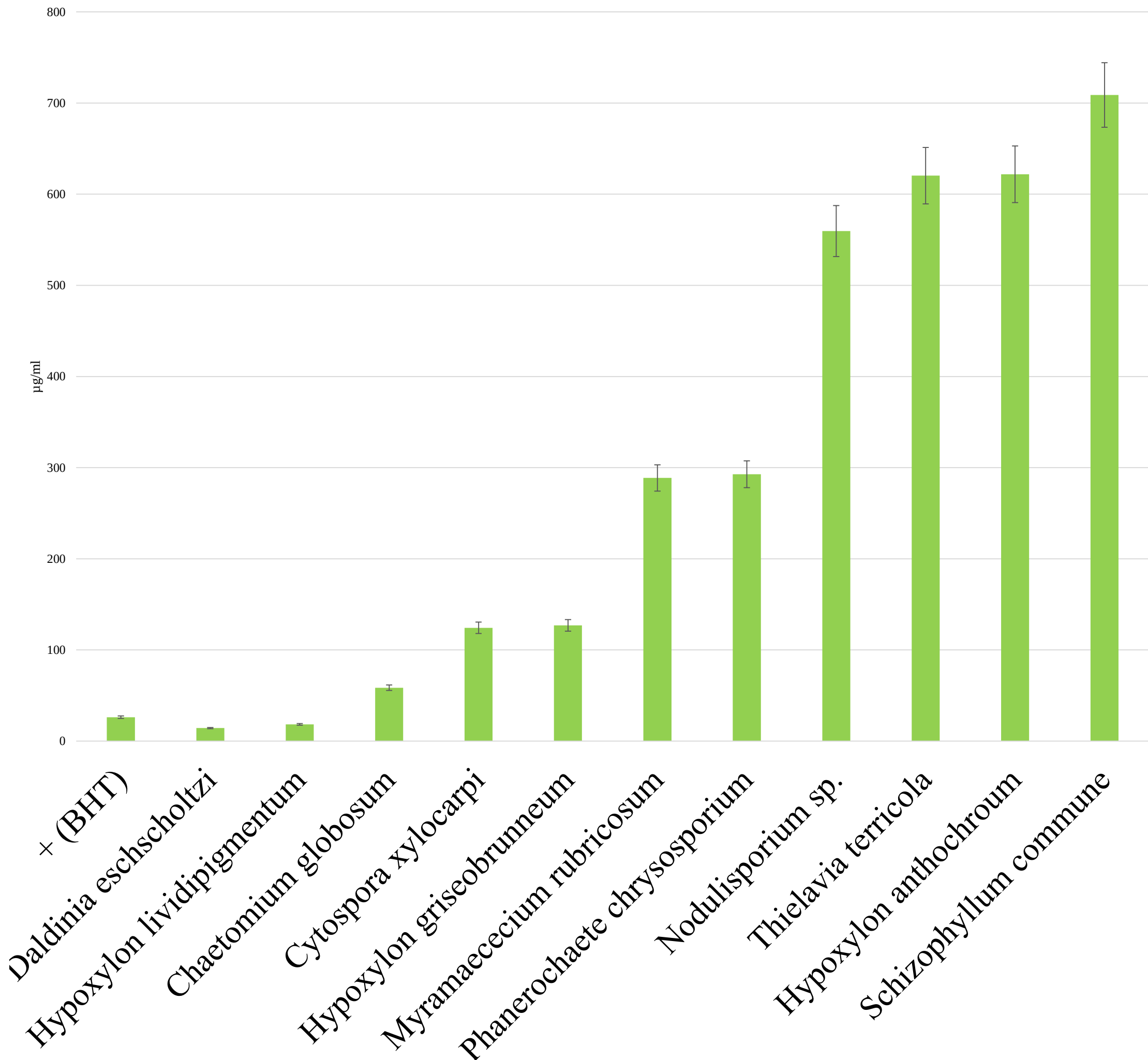
- Endolichenic fungi are reported to be a rich source of novel bioactive compounds.
- Sri Lanka is a country gifted with high natural biodiversity that include a tremendous diversity of lichens as well as endolichenic fungi.
- Mangrove ecosystems are faced with challenging environmental conditions and mangrove associated lichens and its endolichenic fungi, also have special adaptations for their survival.

## Methodology

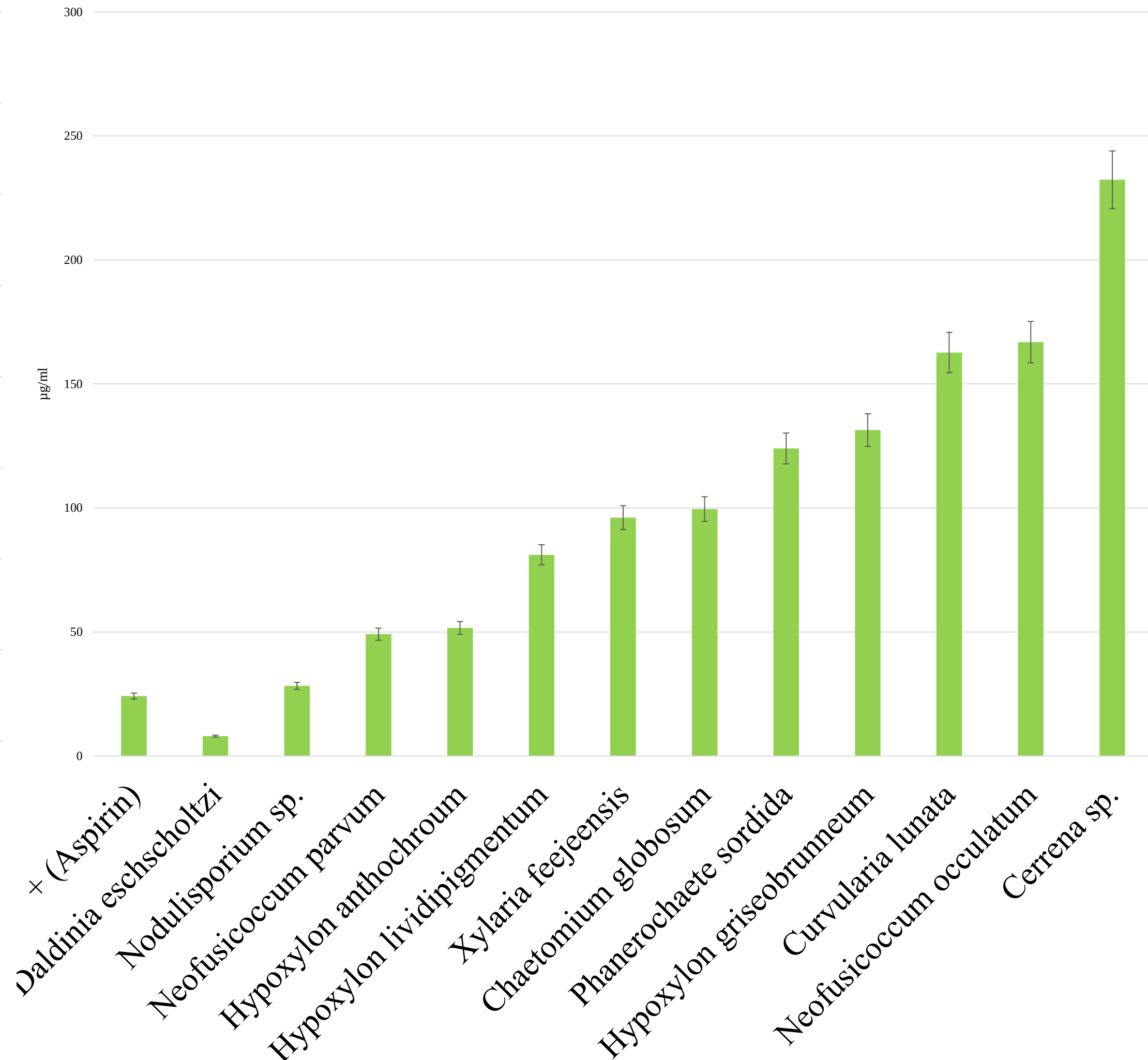


## Results

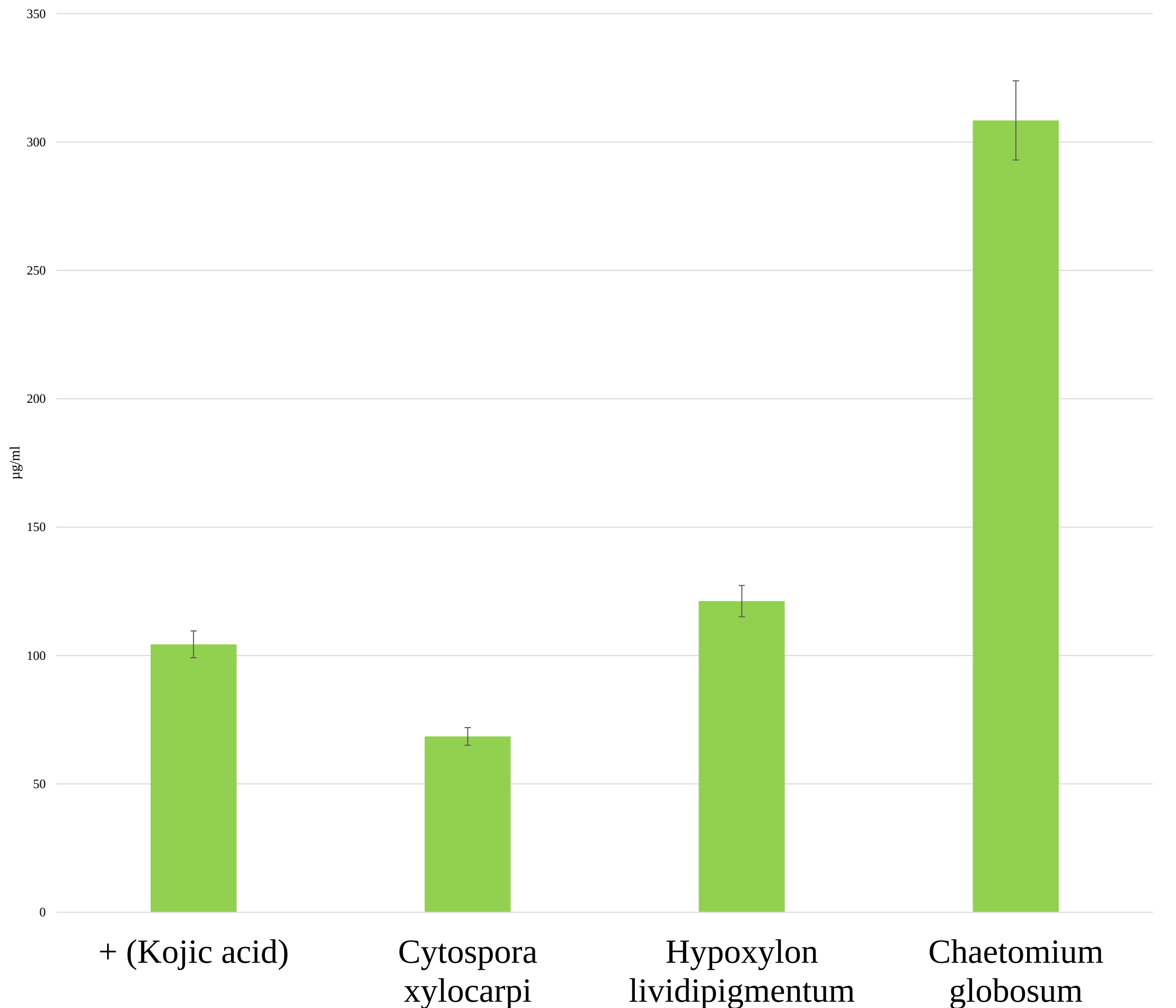
IC<sub>50</sub> comparison for DPPH assay



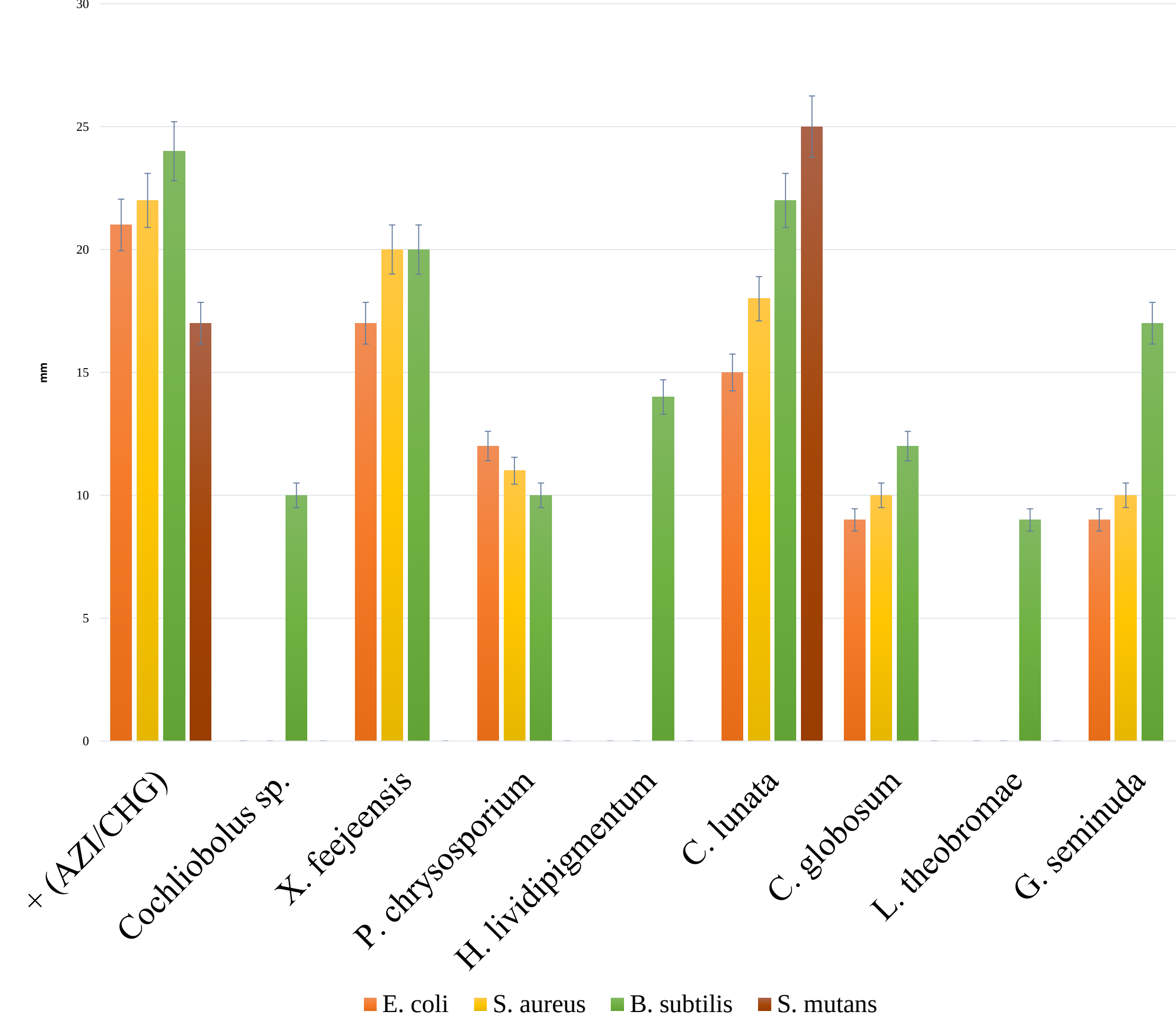
IC<sub>50</sub> comparison for HRBC stabilization assay



IC<sub>50</sub> comparison for tyrosinase inhibitory assay



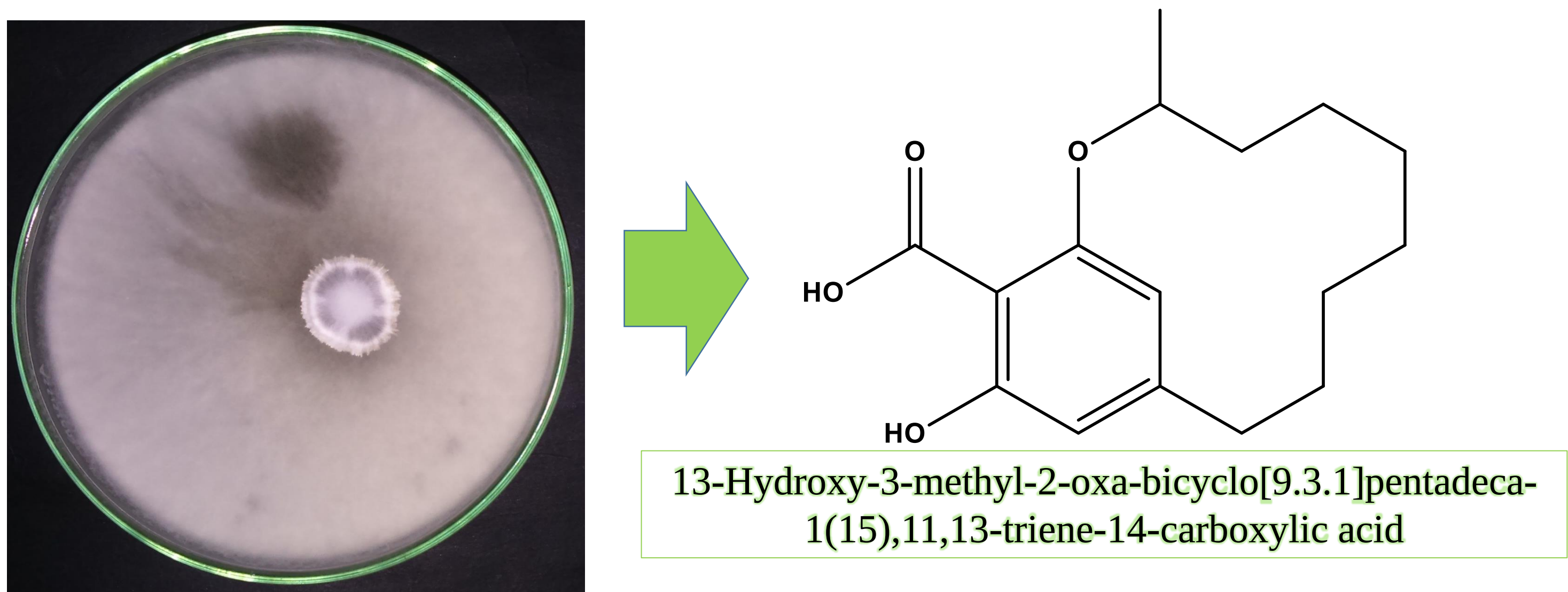
Antibacterial assay inhibition zone comparison (mm), for highest dose 5mg/ml



Non-dereplicable major peaks present in extracts in LCMS dereplication

| Fungus                           | m/z values                                                   |
|----------------------------------|--------------------------------------------------------------|
| <i>Neofusicoccum occulatum</i>   | 542.3131, 319.1170, 552.4197, 1103.8159, 1132.8665, 767.4884 |
| <i>Myramaececium rubricosum</i>  | 604.3099, 648.3360, 655.2750, 892.3669, 572.2901             |
| <i>Hypoxylon lividipigmentum</i> | 919.4281, 746.4877                                           |

Novel bioactive compound isolated from the ELF *Phanerochaete sordida*



*In vitro* assay activity comparison of the compound with respective positive controls

| In vitro assay                                            | Activity of the compound           | Activity of the positive control   |
|-----------------------------------------------------------|------------------------------------|------------------------------------|
| DPPH assay                                                | Max<50%                            | IC <sub>50</sub> 20.90±0.57 µg/ mL |
| ABTS assay                                                | IC <sub>50</sub> 16.39±0.38 µg/ mL | IC <sub>50</sub> 12.16±0.89 µg/ mL |
| HRBC stabilization assay                                  | IC <sub>50</sub> 70.88±0.39 µg/ mL | IC <sub>50</sub> 24.17±0.24 µg/ mL |
| Tyrosinase inhibitory assay                               | IC <sub>50</sub> 476.67±2.40µg/ mL | IC <sub>50</sub> 21.09±1.85 µg/ mL |
| Antibacterial assay ( <i>S. mutans</i> )                  | MIC 250 µg/ mL, MLC 500 µg/ mL     | MIC 50 µg/ mL, MLC 100 µg/ mL      |
| Anticancer assay against breast cancer (cell line MCF-7)  | IC <sub>50</sub> 05.41±0.07 µM     | IC <sub>50</sub> 01.27±0.01 µM     |
| Anticancer assay against oral cancer (cell line CAL-27)   | IC <sub>50</sub> 13.65±0.02 µM     | IC <sub>50</sub> 01.20±0.03 µM     |
| Anticancer assay against cervical cancer (cell line HeLa) | IC <sub>50</sub> 19.69±0.26 µM     | IC <sub>50</sub> 01.43±0.01 µM     |

### References:

- Paranagama PA, Wijeratne EMK, Burns AM, Marron MT, Gunatilaka MK, Arnold AE, et al. Heptaketides from *Corynespora* sp. inhabiting the Cavern Beard Lichen, *Usnea cavernosa*: First report of metabolites of an endolichenic fungus. J Nat Prod. 2007; 70: 1700.

### Acknowledgement:

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