



INTERNATIONAL UNION  
OF PURE AND APPLIED  
CHEMISTRY



# 30<sup>th</sup> International Symposium on the Chemistry of Natural Products

25-29  
November 2018  
Athens, Greece



10<sup>th</sup> International  
Conference  
on Biodiversity

abstractbook



PS2-B-052

## Antidiabetic and antimicrobial properties of three Sri Lankan medicinal plants: *Phyllanthus emblica*, *Cassia auriculata* and *Hemidesmus indicus*

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Sri Lanka is a tropical country rich in high floral diversity. Throughout decades, herbal plants play a vital role in the field of traditional Ayurveda medicine. Scientific information which addresses the ethnopharmacological significance of commonly consumed medicinal plants in Sri Lanka is insufficient. The present study is a continuation of determining the antidiabetic activity of ten selected medicinal plants in Sri Lanka. Among them, methanol extracts of *P. emblica* (Pe), *C. auriculata* (Ca) and *H. indicus* (Hi) demonstrated the highest  $\alpha$ -amylase and  $\alpha$ -glucosidase enzyme inhibitory activity. Their percentage inhibition exceeded 90% for both enzyme assays. IC<sub>50</sub> values of Pe, Ca and Hi for  $\alpha$ -amylase assay was between 3.14±0.30 to 90.91±0.18 µg/mL whereas, for  $\alpha$ -glucosidase assay within 1.48±0.05 to 8.51±0.10 µg/mL. Further, hexane, dichloromethane, and ethyl acetate extracts of Pe, Ca and Hi were screened for antimicrobial activity. To identify the phytochemicals present in the extracts of these three plants, qualitative analysis and chemical profiling using GCMS were carried out. Alkaloids, flavonoids, tannins and terpenoids present in all three plants whereas saponins and steroids were found only in Ca and Hi. Hexane extract of Pe showed good inhibitory activity against pathogenic G +ve and G -ve bacteria and antidiabetic assays. The GCMS profile identified the presence of  $\alpha$ -amyrin,  $\beta$ -amyrin, sitosterol and stigmasterol metabolites in hexane fraction of Pe which may be responsible for the observed high antimicrobial and antidiabetic activity. This provides the scientific basis for the antidiabetic and antimicrobial activity of these three Sri Lankan medicinal plants. Further LC-HRESIMS profiling of other fractions are underway.

**Keywords:** antimicrobial, enzyme inhibitory, medicinal plants