Introduction: The ethnopharmacological use of Cymbopogon spp. dates back from ancient times. Traditionally used in tropical and semi-tropical countries for the repellent properties of their essential oil, the consumption of Cymbopogon spp. infusions is growing all over the world. This is not only due to the unique aroma, widely appreciated by the consumers, but also because of the antimicrobial, anti-inflammatory and sedative properties.  

Methods: The chemical characterization of infusions and ethanol:water (50:50, v/v) extracts from Cymbopogon citratus and Cymbopogon schoenanthus was achieved by HPLC-DAD. The anti-inflammatory potential of the extracts was assessed by cell and cell-free assays.  

Results: HPLC-DAD analysis allowed the identification of several caffeic acid derivatives and flavonoids in the infusions and in the ethanol:water extracts of both species. The different extracts displayed scavenging activity against superoxide anion and nitric oxide (NO) radicals, and capacity to significantly reduce NO production by LPS-stimulated macrophages (RAW 264.7 cell line). In addition, the extracts were able to prevent hyaluronic acid degradation via inhibition of hyaluronidase, an enzyme recognized to participate in a number of physiological and pathological processes, including inflammation. No toxicity was observed on human gastric adenocarcinoma and hepatocyte carcinoma cell lines, at a maximum concentration of 2.0 mg lyophilised extract/mL.  

Conclusion: This study provided scientific evidence on the ethnopharmacological use of Cymbopogon species on inflammatory conditions, encouraging infusion consumption and future incorporation of Cymbopogon spp. extracts into nutraceuticals.  

Acknowledgements: This work received financial support from National Funds (FCT/MEC) through project UID/QUI/50006/2013, co-financed by FEDER through COMPETE, under the Partnership Agreement PT2020, and from NORTE 2020, under the PORTUGAL 2020 Partnership Agreement, through ERDF (NORTE-01-0145-FEDER-000024). MB is indebted to FCT for the grant (SFRH/BD/95861/2013).