Exploration of herbal medicine-based antiasthmatic treatments in the Kumasi metropolis; providing scientific validation for *Ageratum conyzoides* use in asthma

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Introduction

- Asthma prevalence and mortality continue to grow despite the many advances in the treatment suggesting limitations with current approaches or difficulties with access and cost of orthodox medicines.
- Historically, plants have contributed over 25% of new drugs discovered in the last two decades. Although there have been reports of herbal medicines use in asthma, literature searches show; the lack scientific documentation and validation. This has hampered their universal acceptance and integration of herbal medicine in Ghana (Appiah et al., 2018; Asare et al., 2021)
- We therefore sought to document medicinal plants used in the management of asthma within the Kumasi Metropolis and to experimentally evaluate Ageratum conyzoides, a plant frequently cited by traditional practitioners, for possible anti-asthmatic activity.

Methods

Ethnopharmacological survey

78 herbal practitioners interviewed (Jan–Mar 2024) in a community-based survey within the Kumasi Metropolis

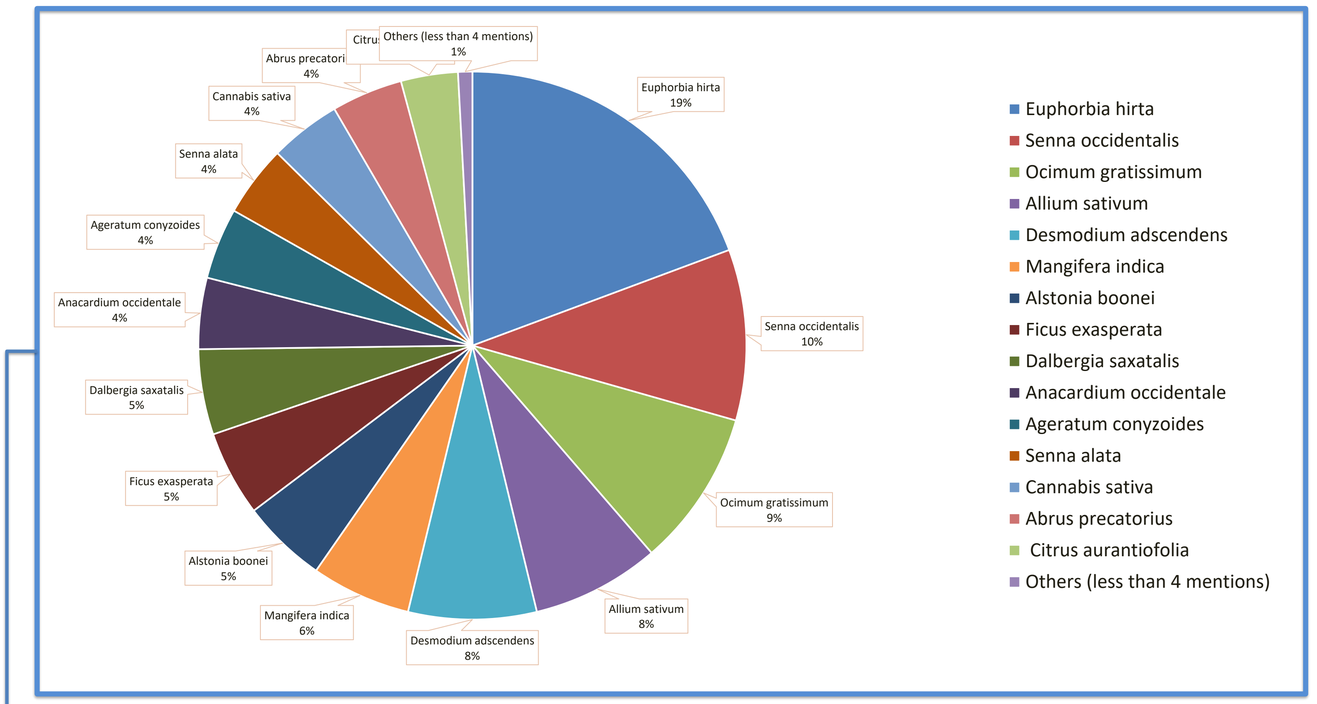
Plant collection and preparation
HPLC analysis

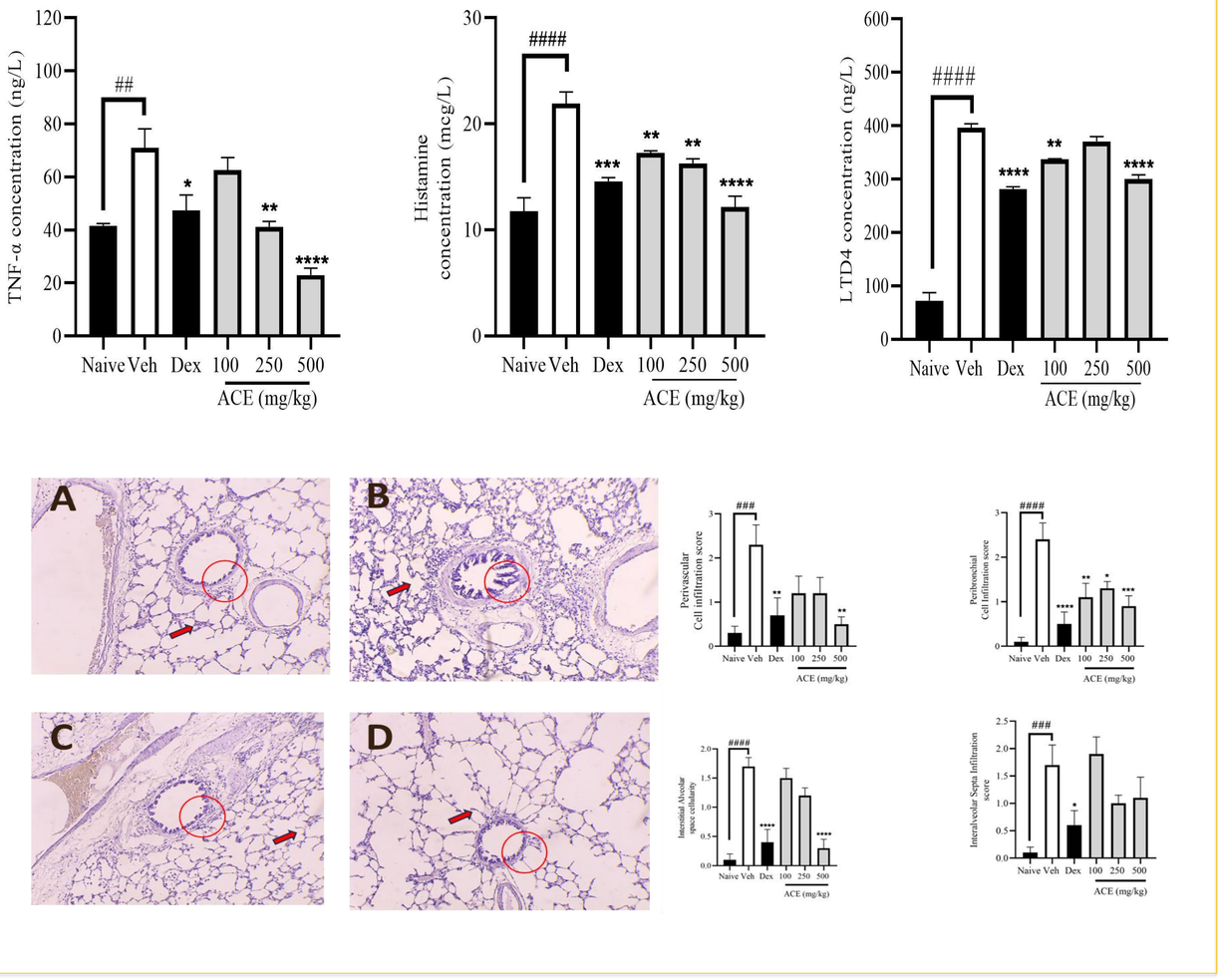
Effect of ACE on OVA-induced airway inflammation

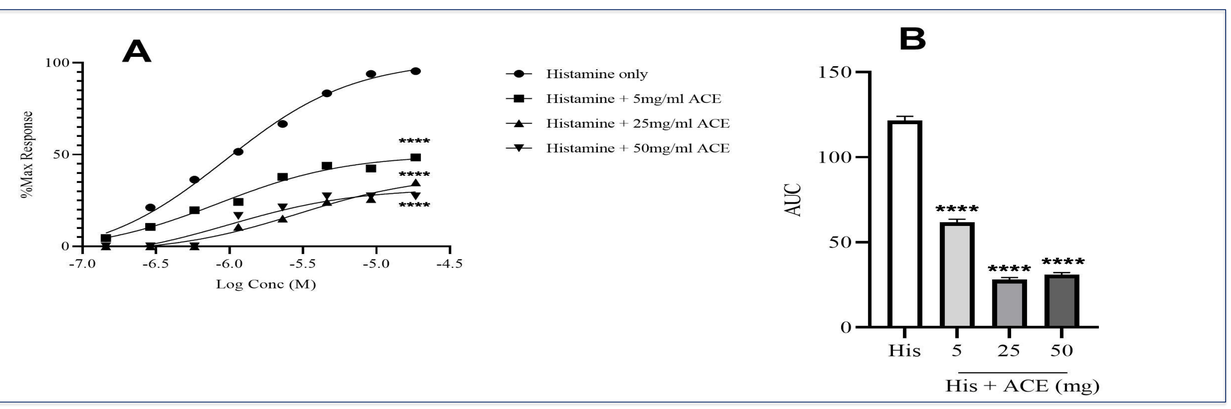
Auxiliary models

Effect of ACE on smooth muscle contraction

Results







Conclusions

The results obtained demonstrate that the extract possesses coherent pharmacological profile that targets the hallmark features of asthma; airway inflammation, mast cell stabilization, oxidative stress attenuation, cytokine level reduction, smooth muscle relaxation, and airway hyperresponsiveness

Appiah, B., Amponsah, I.K., Poudyal, A. et al. (2018). Identifying strengths and weaknesses of the integration of biomedical and herbal medicine units in Ghana using the WHO Health Systems Framework: a qualitative study. BMC Complement Altern Med 18, 286. https://doi.org/10.1186/s12906-018-2334-2

Agyare, C., Asase, A., Lechtenberg, M., Niehues, M., Deters, A., & Hensel, A. (2009). An ethnopharmacological survey and in vitro confirmation of ethnopharmacological use of medicinal plants used for wound healing in Bosomtwi-Atwima-Kwanwoma area, Ghana. Journal of Ethnopharmacology, 125(3), 393–403. https://doi.org/10.1016/j.jep.2009.07.024