Fingerprinting and bioprofiling of anti-TB medicinal plants by an effect-directed HPTLC method

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Highlights

- *Development of a streamlined bioanalytical method for quality control of anti-tuberculosis (TB) tinctures*
- *Rapid fingerprinting and bioprofiling of commercially available anti-TB tinctures*
- *Without any sample preparation, the botanical tinctures were applied on the plate.*
- *Hyphenated HPTLC-UV/FLD/Vis-EDA-HRMS enabled the characterization of bioactive substances in the botanical samples.*

Fig. 1 Fingerprints of anti-TB medicinal plants before (A) and after derivatization with anisaldehyde sulfuric acid (B) and the Neu's reagents (C) recorded at UV 366, after *Bacillus subtilis (E) Aliivibrio fischeri (D),* acetylcholinesterase (F) assays , all recorded under white light illumination.

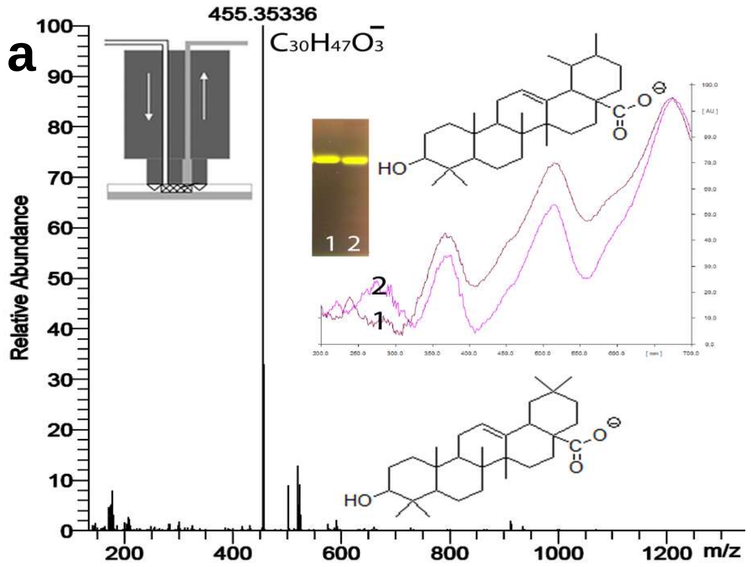

Fig. 2 HPTLC-ESI$^-$-HRMS spectrum recorded for the bioactive zone a in sample 3 (track 1) and comparison to ursolic acid (track 2) after derivatization with anisaldehyde sulfuric acid and their UV/Vis spectra (200–700 nm) comparison

- ✓ *HPTLC-HRMS supported the assignment of bioactive substances (Fig. 2): one major bioactive zone, observed in all available (bio)assays, was identified via HRMS and reference standard to be one of the two structure isomers of ursolic acid or oleanolic acid, however, only discovered in Pavetta crassipes (Rubiaceae, Fig. 1 sample 3).*
- ✓ *UV/Vis spectra were an additional helpful tool for characterization of compounds; spectra comparison showed a good correlation between the standard ursolic acid and substance a, however, structure elucidation of these isomers demand hyphenation of HPTLC to NMR.* ⟹ *Posters 65 and 68*

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