

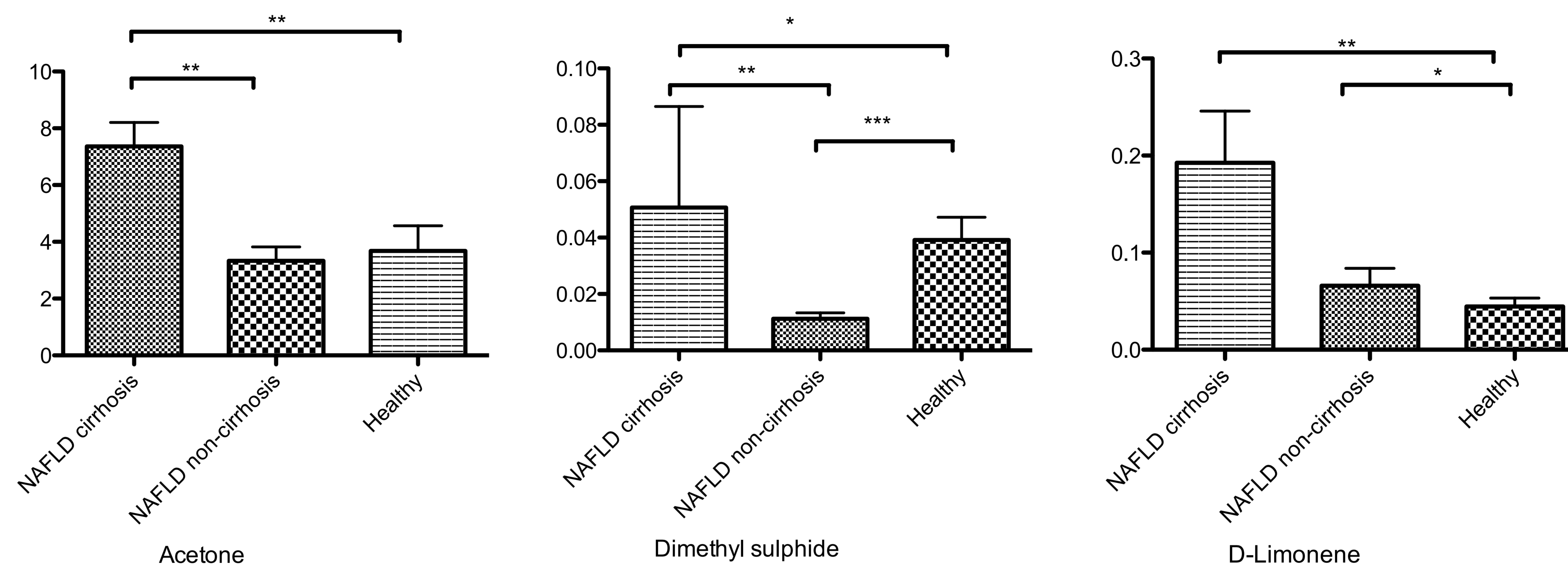
## BACKGROUND AND AIMS

Breath-omics is gaining popularity as a method for non-invasive measure of biomarkers for various diseases. Breath metabolome is a multitude of volatile organic compounds (VOCs) reflecting pathological metabolic processes. The purpose of this study was to compare breath VOCs in patients with non-alcoholic fatty liver disease (NAFLD) and healthy controls.

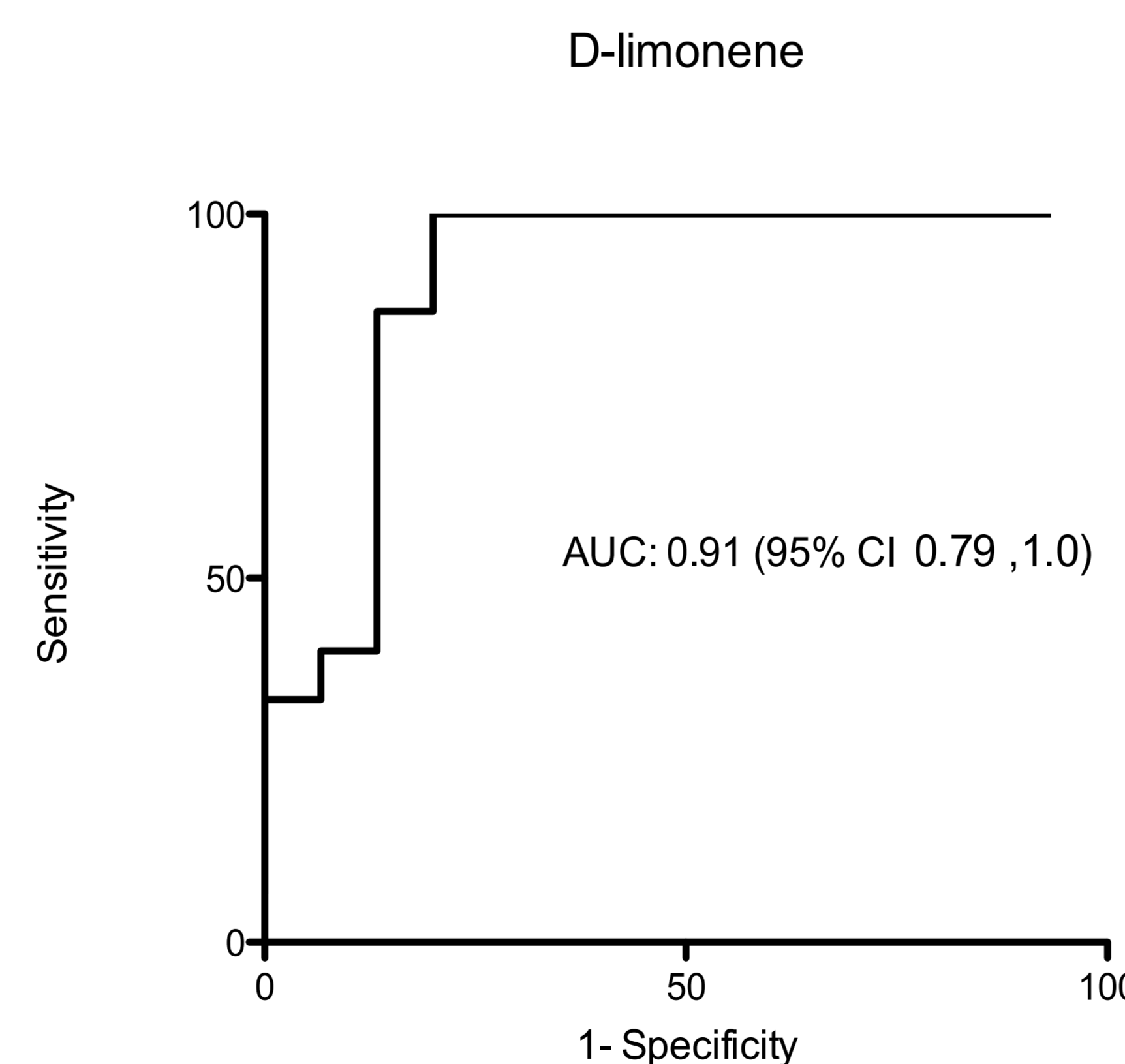
## METHOD

Breath samples were collected<sup>1</sup> from well characterized NAFLD patients; a) NAFLD cirrhotic (n=15), b) NAFLD non-cirrhotic (n=15) and c) self-declared healthy subjects (n=15). VOCs were identified using mass spectrometry; comprising of abundant and trace compounds. The mass spectra of each compound were matched in the chromatogram and further identified using AMDIS® software. The peak automatically integrated using Xcalibur®. Data were analysed by non-parametric ANOVA (Kruskal-Wallis) and Dunns *post-hoc*. Receiver Operating Characteristic (ROC) curves were used to determine the diagnostic accuracy of the volatiles compound.

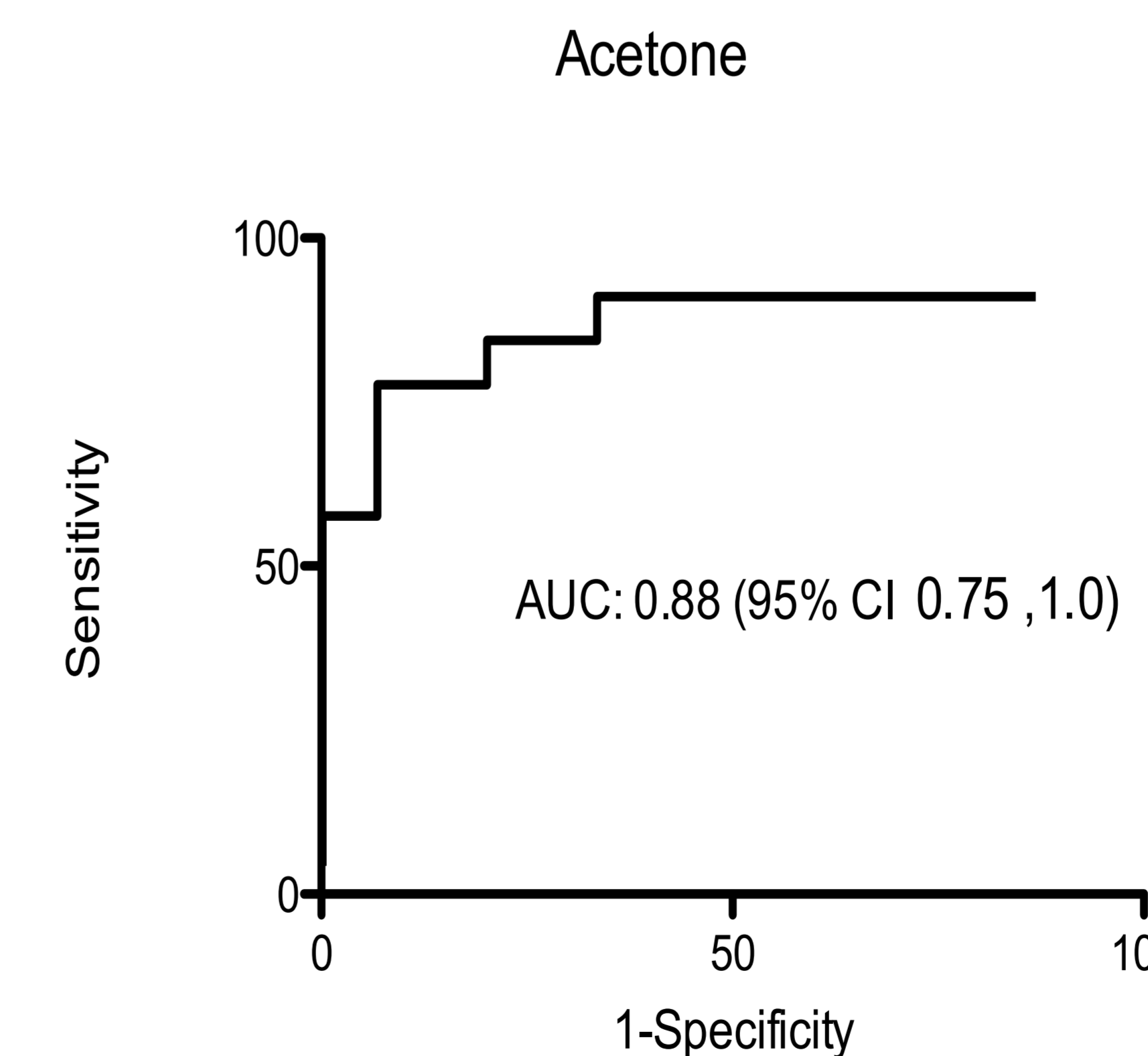
## RESULTS



Body mass index adjusted exhaled breath levels of acetone, dimethyl sulphide, d-limonene, were significantly higher ( $p < 0.001$ ,  $p < 0.01$ ,  $p = 0.005$ ) in patients with NAFLD cirrhosis.



D-limonene (AUROC = 0.91) is found to provide the most discriminatory power for NAFLD cirrhosis from healthy. Breath acetone level can distinguish between NAFLD non-cirrhotic & NAFLD cirrhotic; AUROC = 0.88



## CONCLUSIONS

Breath VOCs have a promising future as biomarkers for a non-invasive diagnostic and prognostic tool in the management of NAFLD.

D-limonene and acetone can identify NAFLD non-cirrhosis from NAFLD cirrhosis with confidence.

Future validation of our finding to external cohort is needed.

## REFERENCE

1. Fens N, de Nijs SB, Peters S, Dekker T, Knobel HH, Vink TJ, et al. Exhaled air molecular profiling in relation to inflammatory subtype and activity in COPD. Eur Respir J 2011;38:1301-1309

## CONTACT INFORMATION

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