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Complex carbohydrates are an integral part of foods and the structural assignment of these complex oligo- or polysaccharides is a necessary step for understanding their biological functions and biosynthetic pathways. NMR is a powerful and often used technique in this structure determination and it often relies on natural ^{13}C abundance, which comes with severe limitations – low sensitivity and highly overlapping spectra. Insight into the multifaceted mixture of different carbohydrates at natural ^{13}C isotopic abundance was achieved through ^{13}C projections from two-dimensional ^{1}H-^{13}C HSQC experiments using high-resolution in the second dimension, thereby providing a highly detailed mapping of a central compound class that is not easily amenable to other detection modalities. Carbohydrate structures were investigated by use of the anomeric reporter signals (Figure 1A). Multivariate data analysis techniques were used to examine the carbohydrate profile of ale, lager and Lambic beer types to identify differences (Figure 1B), which could stem from differences in the fermentation processes. Moreover, the carbohydrate profiles are correlated to the beer alcohol content, thereby providing information about biological and biotechnological processes in beer production.

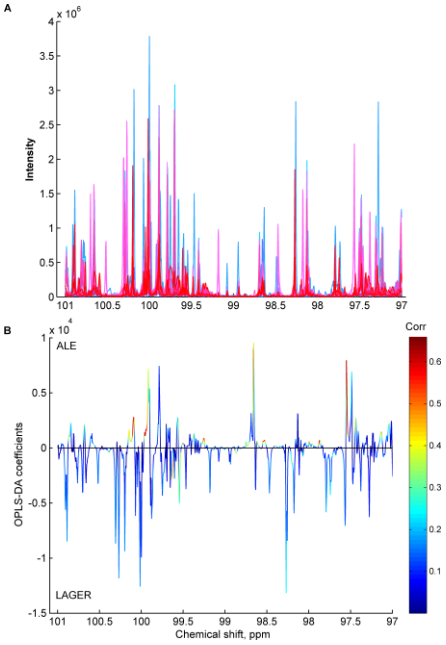

***Figure 1**. A) ^{13}C spectra created from positive projection of F1 in ^{1}H-^{13}C HSQC spectra of 42 beers. b) S-line plot from an OPLS-DA model on ^{13}C projected spectra of beers (ale and lager).*