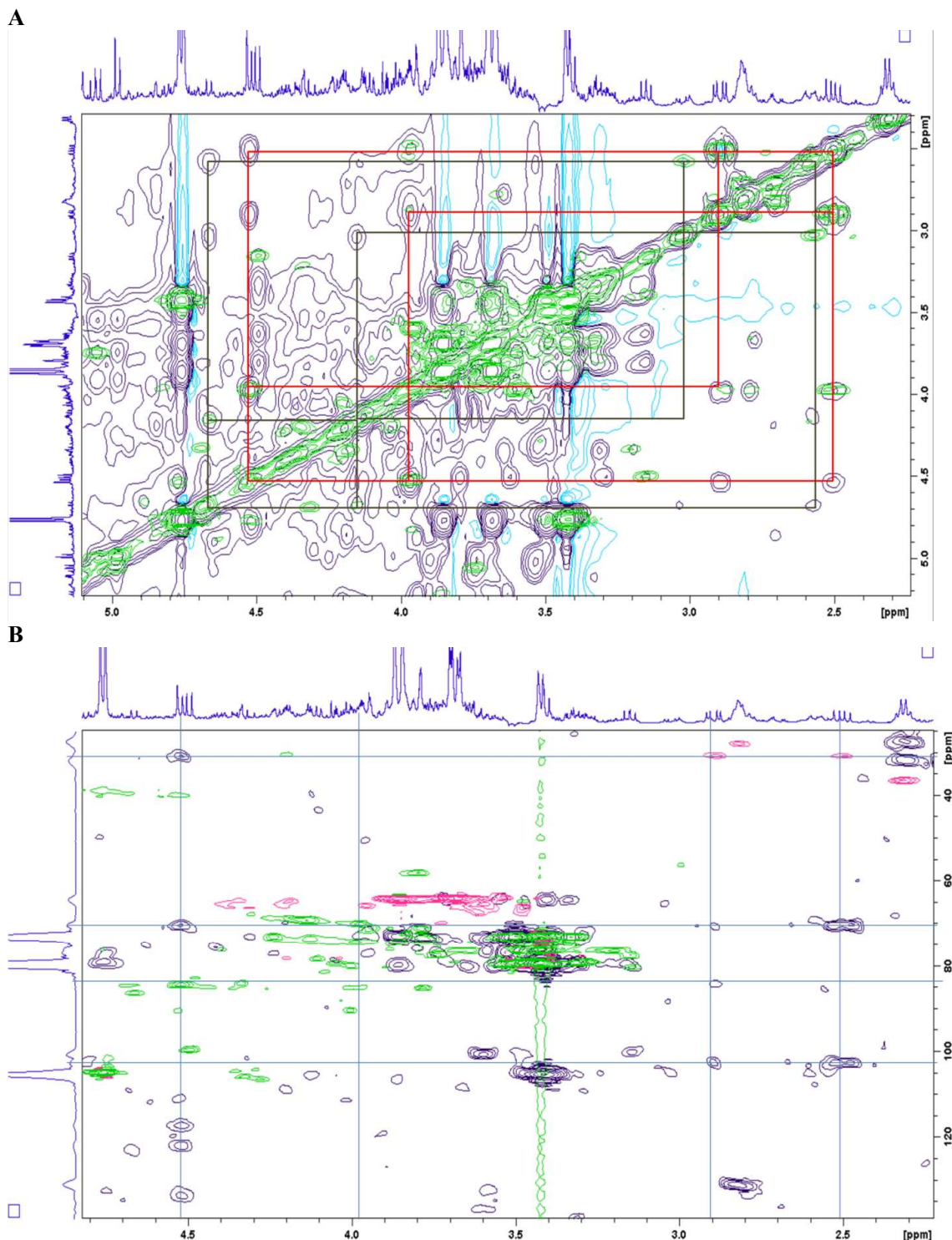**Supplementary Figure 1**. 2D HMBC spectrum (dark blue) with overlaying 2D CH$_2$-edited HSQC spectrum (green: CH$_3$, CH and pink: CH$_2$ couplings) and 1D TOCSY selective to δ 4.74 ppm of the β-glucose unit of *p*-arbutin (light blue). Correlations of p-arbutin are indicated by light blue lines, and correlations of 2-*O*-caffeoyl-arbutin are indicated by red lines. Possible correlation of acetyl group to 6" position of sugar is indicated by dark green line.

Supplementary Figure 2. A. 2D TOCSY spectrum (dark and light blue) with overlaying 2D COSY spectrum (green). Couplings of catechin are indicated by red boxes and epicatechin by black boxes. (All the couplings are not individually indicated for the sake of clarity) **B.** 2D HMBC spectrum (dark blue) with overlaying 2D CH$_2$-edited HSQC spectrum (green: CH$_3$, CH and pink: CH$_2$ couplings). Couplings of catechin are indicated by blue lines. Hetero nuclear couplings of epicatechin are weak and not shown in the figure.
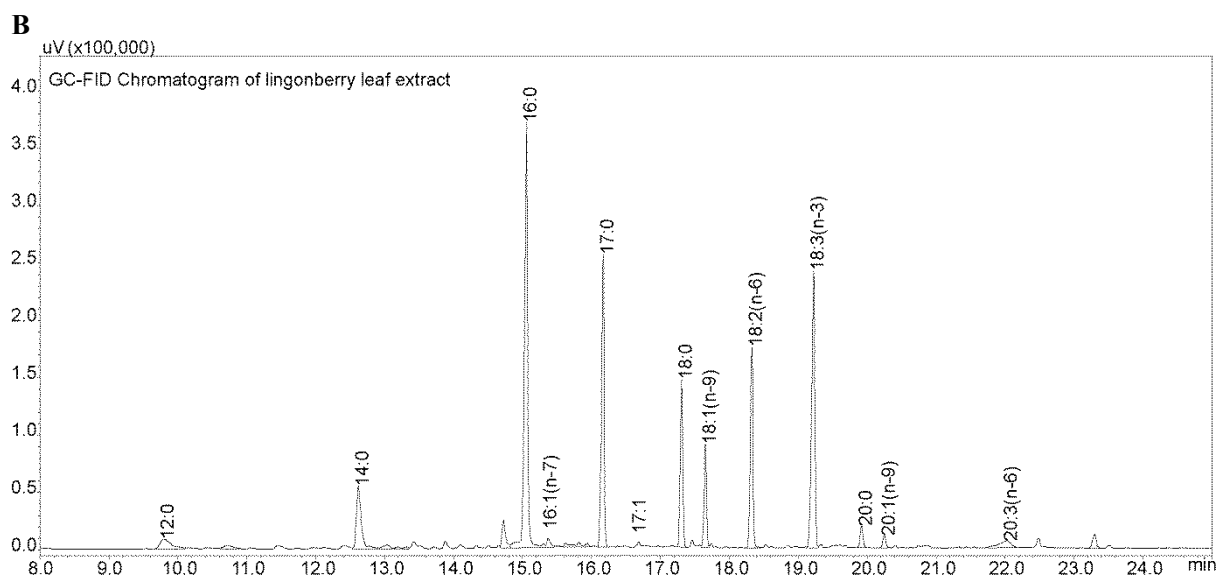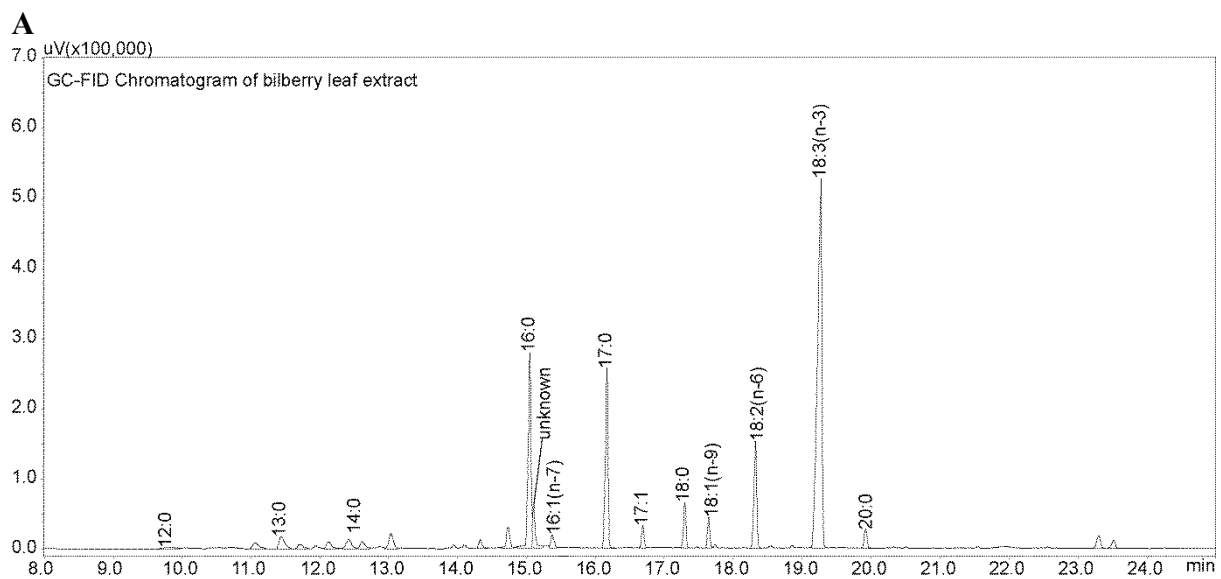
Supplementary Figure 3. GC-FID chromatograms of FAME in extracts from bilberry leaf (A) and lingonberry leaf (B).
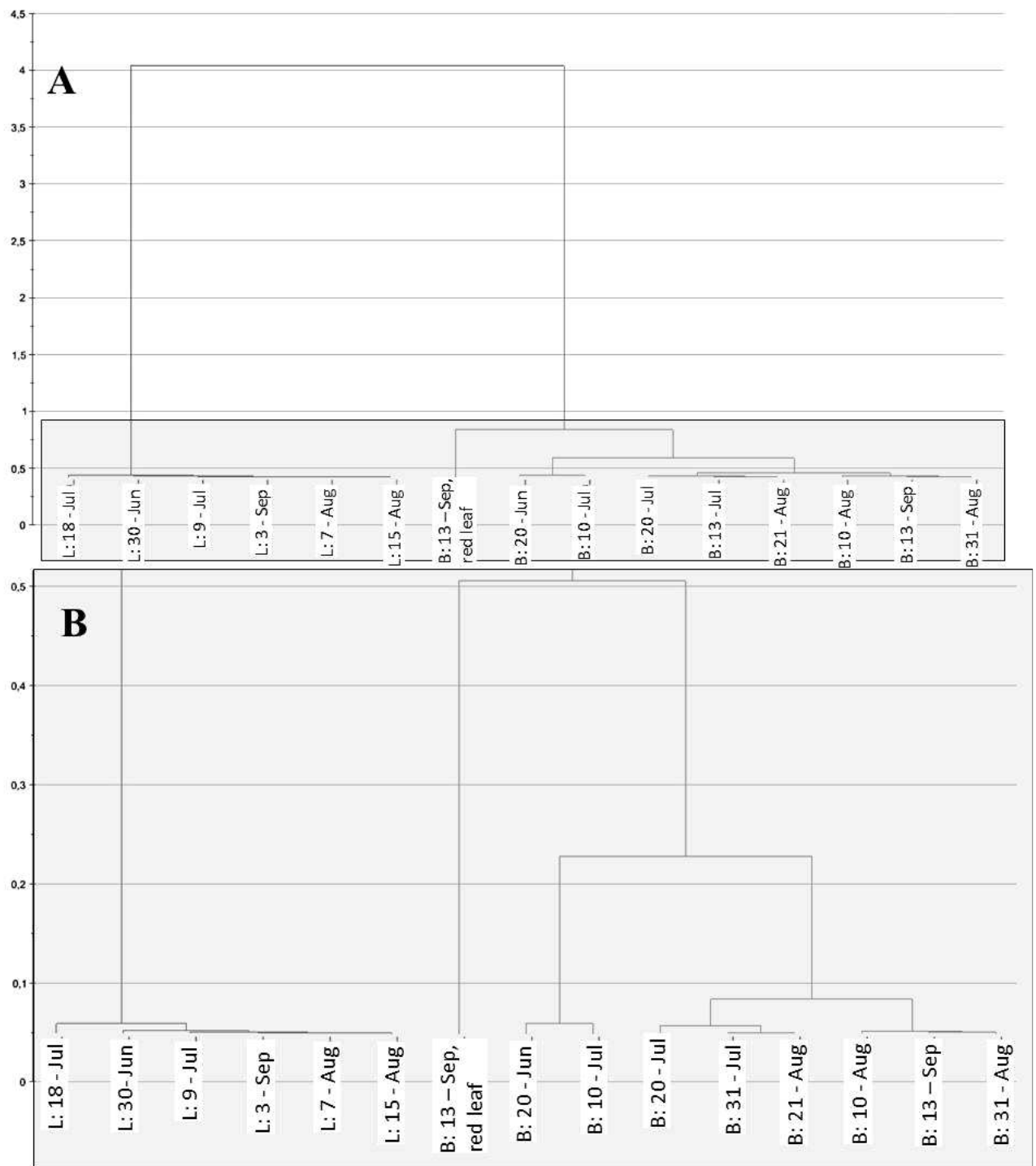
Supplementary Figure 4. The original dendrogram (A) of hierarchial clustering analysis and cropped area indicating the zoomed area (B). L: refers to lingonberry leaf samples and B: refers to bilberry leaf samples and their collection times.