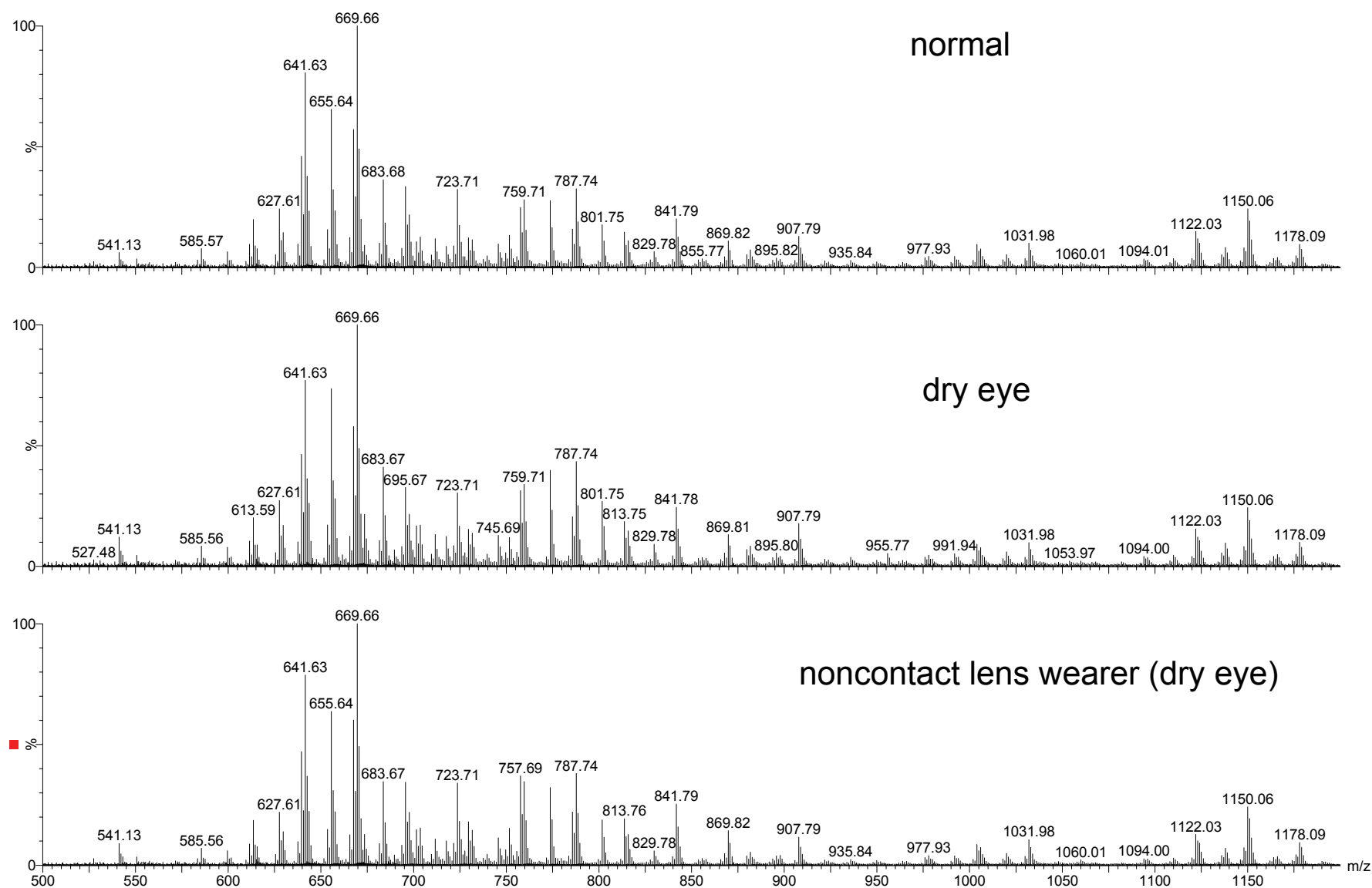
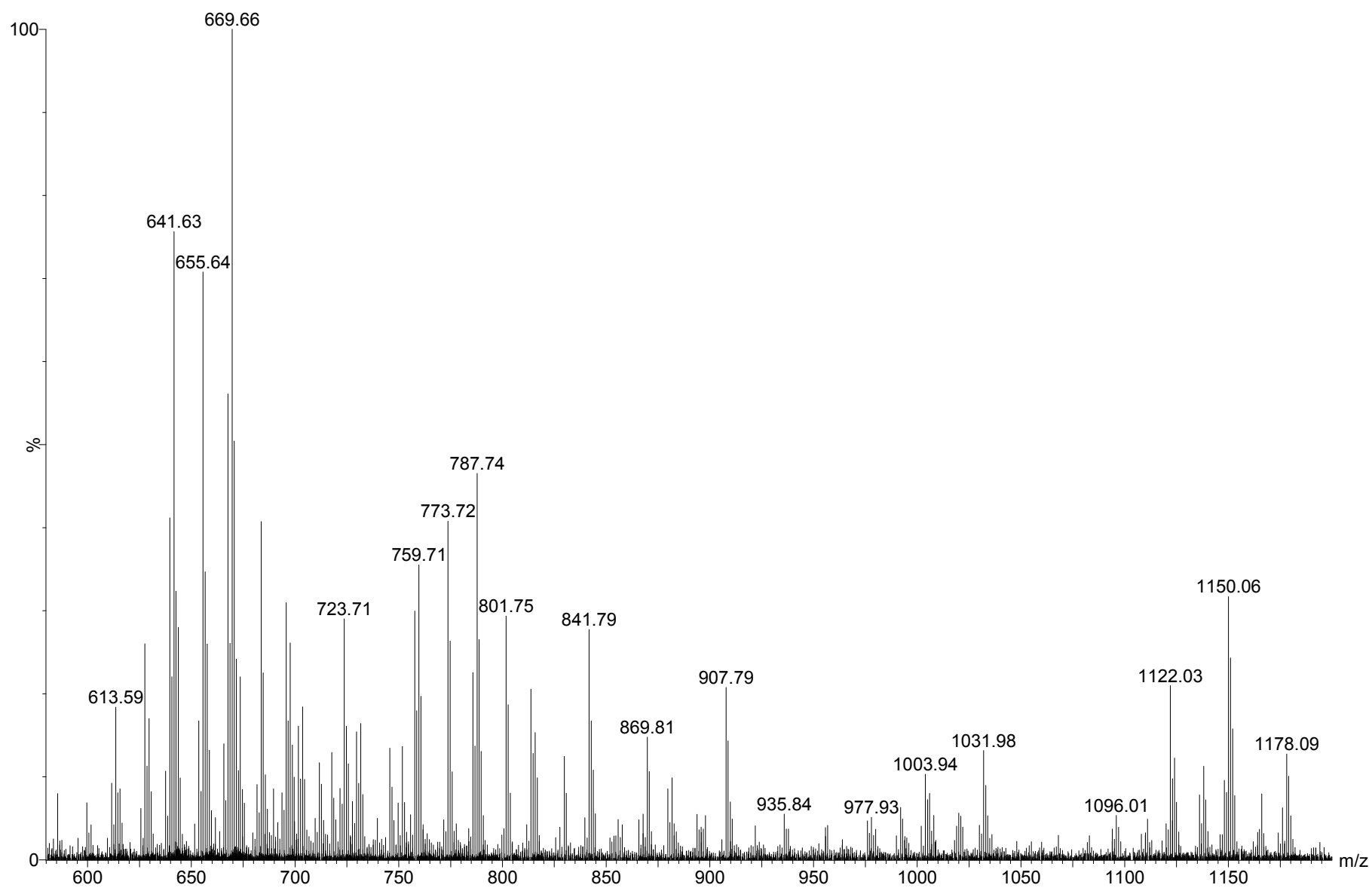


**Supplementary Figure S1.** Comparison of MS spectra of a meibum sample with 1 mM sodium iodide additive at different cone voltages: a) 15V; b) 50V and c) 75V. The other experimental conditions are the same as in Figure 1. Only the range  $m/z$  600-1200 of the spectra is shown. The cluster ions are mainly composed of multiple ion pairs of  $\text{Na}^+$  and  $\text{I}^-$  and one  $\text{Na}^+$ , sometimes with additional ion pair of  $\text{Na}^+$  and  $\text{Cl}^-$ . The anion  $\text{Cl}^-$  was most likely from chloroform.



**Supplementary Figure S2.** Representative spectra for each group of meibum samples. The spectra were acquired at cone voltage of 50V. Each sample containing ~ 3.2  $\mu\text{g/mL}$  lipids was diluted from stock solution with the final composition of 1.3% chloroform and 98.7% methanol (v/v) and the additive of 33  $\mu\text{M}$  NaI. The flow rate was 40  $\mu\text{l/min}$ , the desolvation temperature was 250°C and the acquisition time was 5 min.



**Supplementary Figure S3.** Representative spectrum for a meibum sample with the acquisition of 1 scan (1 s). The experimental condition is the same as in **Supplementary Figure S2**.