



**Supplementary File 3:** MS2 spectra of each compound annotated at identification level 2 (Alteramide A, Alteramide B, Surugamide A), comparing a spectrum detected in the culture extract of an exemplary microbe (top) to a publicly available spectrum on the MassIVE repository (bottom). Publicly available spectra can be found at: Alteramide A, Alteramide B: f.MSV000079516/ccms\_peak/Labelled/R5\_lab\_J1074\_pre.mzXML; Surugamide A: f.MSV000079519/ ccms\_peak/Unlabelled/A1\_unlab\_J1074\_pre.mzXML (accessed on June/2020).