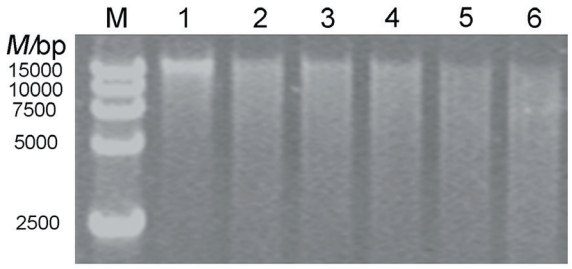

Fig. S1. The effect of D-Ala on DNA damage using 1 % agarose gel in the presence of 0.1 mM Fe^{2+} and 0.1 U/mL D-amino acid oxidase. M=molecular marker, lanes 1-6: *c*(D-Ala)=0, 0.05, 0.1, 0.2, 0.4 and 0.6 mM

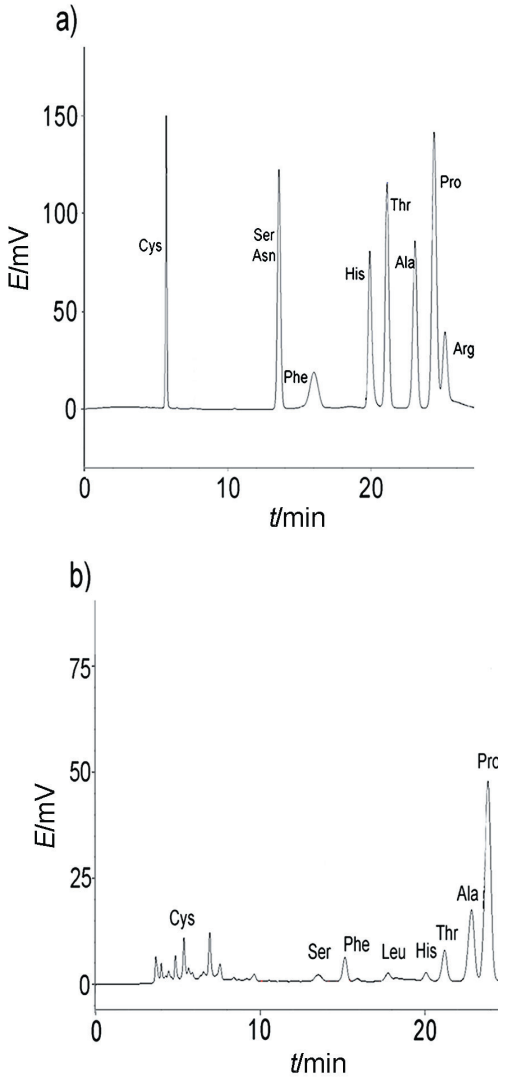

Fig. S2. Determination of amino acids in beer by HPLC: a) sample of standard amino acids (*c*/mM): Cys 0.75, Ser 1.00, Asn 0.54, Phe 1.00, His 0.65, Thr 1.80, Ala 1.89, Pro 0.90 and Arg 0.80, and b) beer sample

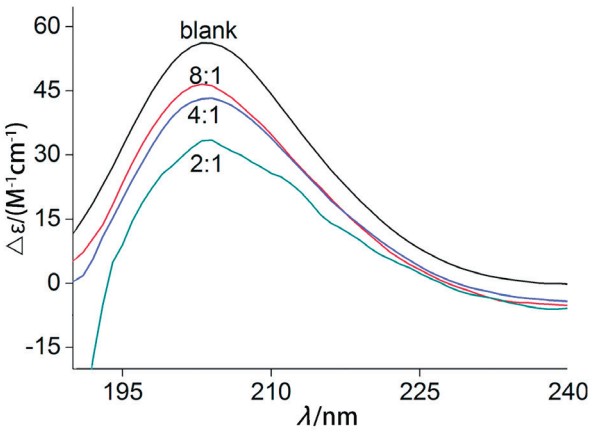

Fig. S3. The effect of heating and metal ion on the racemization of L-Ala. The concentration of L-Ala in the samples was 0.03 mmol/L, and the L-Ala to Cu^{2+} concentration ratios were 2:1, 4:1 and 8:1

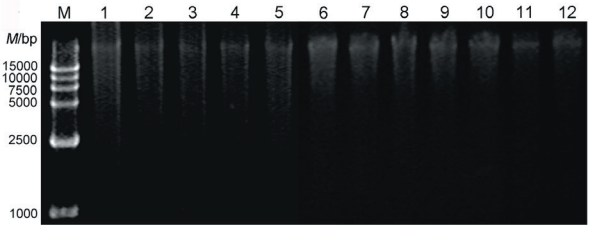

Fig. S4. The effect of I^-, 0.1 mM Fe^{3+} (Fe^{3+}–EDTA), 0.1 mM D-Ala and 0.75 U/mL D-amino acid oxidase on DNA damage. M=molecular marker, lanes 1-5=DNA damage in the presence of Fe^{3+} and I^- at different concentrations (20, 40, 60, 80 and 100 μM respectively), lanes 6-10=DNA damage in the presence of Fe^{3+}–EDTA and I^- at different concentrations (20, 40, 60, 80 and 100 μM respectively), lane 11=DNA damage in the presence of 100 μM I^-, lane 12=DNA sample