Application of peptide affinity for environmental purpose

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The peptide, oligomer of amino acids, has been known as the biological material with high selectivity toward specific target component. It is applicable as a sensor with high sensitivity and a selective biosorbent for the removal of micropollutants. Biopanning is the most popular protocol to screen the peptide sequence with high affinity to target component. The selected peptide sequence can be displayed on the cell surface such as E. coli. The peptide-displayed cell was verified to function well as a biosorbent. For example, the peptide sequence, ThrAsnThrLeuSerAsnAsn (TNTLSNN), exhibiting high selectivity to Pb2+ against several heavy metal ions, was displayed on cell surface for the application of biosorbent. The peptide sequence with specific affinity to bisphenol A, LysSerLeuGluAsnSerTyr (KSLENSY), was screened previously. The screened peptide sequence has a higher selectivity toward bisphenol A compared with the analogues of bisphenol A such as bisphenol S and bisphenol E. In the present work, various application of peptide was suggested for environmental purpose such as E.coli-based system and magnetic bead-based peptide system.