

Biosynthesis of natural dyes and pigments for functional biomaterials

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In this presentation, the production of various environmentally friendly chemicals from amino acids will be presented. First, the application of aromatic aldehyde to produce black pigment melanin polymer will be described. The aromatic aldehyde can be derived from L-tyrosine, and it can be applied to various chemical industries such as polyurethane synthesis. Secondly, a study on the production of indigo dye, a green dye, from L-tryptophan will be presented. Although synthetic dyes are mainly used in most of industries, in this study, the production of bio-indigo from L-tryptophan using enzymatic biotransformation methods will be presented. In addition to the bio-indigo production, it includes a successful bio-indigoid production by applying the chemo-enzymatic conversion of L-tryptophan with various functional groups modified as well as their versatile applications into biodegradable functional polymers.