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## Green Preparation and Selective Permeation of D-Tryptophan Imprinted Composite Membrane for Racemic Tryptophan

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### Abstract

Enantioseparation of racemic tryptophan is very important for pharmaceutical production. Conventional separation methods are high costly, energy intensive and environmentally unfriendly. Permeation separation based on membrane separation technique is a promising technology with advantages of energy efficient, clean and no additives. However, lots of organic compounds are commonly used for the traditional preparation of various membranes for enantioseparation of racemic tryptophan. Thus, we developed a totally green and clean preparation method using nature polymer sodium alginate as functional polymer, water as solvent and  $\text{CaCl}_2$  as crosslinking agent. Besides, polyvinylidene fluoride membrane was selected as supported membrane. Molecularly imprinted technology with D-Tryptophan as template molecule was introduced to enlarge mass transfer flux. Various methods were used in characterization of molecularly imprinted composite membrane (MICM) and non-imprinted composite membrane (NICM). Effects of preparing conditions, permeation conditions and concentration polarization on permeation performance of

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