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(54) Title: BIOPRODUCTION OF ENANTIOPURE (R)- AND (S)-2-PHENYLGLYCINOL FROM STYRENE AND RENEWABLE FEEDSTOCKS VIA ARTIFICIAL ENZYME CASCADE

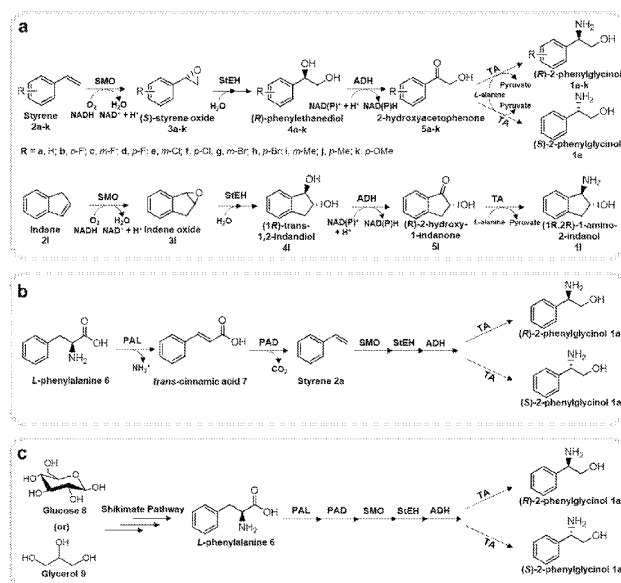


FIG. 1

(57) Abstract: The present invention relates to methods of bioproduction of enantiomerically pure or enantiomerically enriched 2-phenylglycinol or a derivative thereof by multiple enzyme-catalyzed chemical transformations in a one-pot reaction system. In a specific embodiment, at least one multiple enzyme is located on one or more plasmids or integrated in the chromosome of each of the one or more recombinant microbial cells. In a further embodiment, one or more recombinant microbial cells are genetically engineered to overexpress multiple enzymes, including styrene monooxygenase, epoxide hydrolase, alcohol dehydrogenase, transaminase, phenylalanine ammonia lyase, and phenylacrylic acid decarboxylase.

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