**Enantiospecific Resolution of *racemic* Benzoins for Asymmetric synthesis of Anti-tumor benzoyloxydiphenylethanones via *chincona* surfactant stabilized Ferrite nanoparticles**

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**Abstract**

Oxidative kinetic resolution of racemic benzoins have gained much interest owing the pharmaceutical relevance of distinct isomers, and has been reported to occur via expensive chiral amines and a variety of 3*d*-trasition metal complexes, that pose problems of heavy metal leaching. This directed the development of anti-leaching chiral metal-organic nanocatalysts which are both affordable and efficient. In this context, our group has developed a series of chincona alkaloid based mono and gemini surfactants, that have later been used as stabilizers of various ferrite nanoparticles synthesized by co-precipitation method. It has been found that magnetite nanoparticle stabilized by α,α’-bis-hydrocinchoninium-*p*-xylene­-dibromide gemini surfactant afforded room temperature enantiospecific oxidative resolution of racemic benzoin with high selectivity under 8 h. Similar selectivity was observed for substituted benzoins. The developed catalyst was also capable for enantiospecific resolution of racemic benzoins via its benzoylation under similar reaction conditions with high selectivity. The abovementioned catalyst afforded one pot enantiospecific synthesis of anti-tumor benzoyloxydiphenylethanones with higher yields and selectivity under 24 h. The developed heterogeneous catalyst has been found to show high recycling capability up to 10 cycles with no Fe-leaching and nearly no change in selectivity.

**References**

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**Biography**

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Pranshu Kumar Gupta is a B.Sc.(Hons.) and M.Sc. (specialization: Inorganic) Chemistry Gold medalist, from Department of Chemistry, Center of Advanced Study, Institute of Science, Banaras Hindu University, India. He is presently working as a doctoral student under the guidance of Prof. Kalluri V.S. Ranganath, in the same Institute. He has worked as a summer intern at Indian Institute Science (IISc, Bangalore) and Indian Institute of Scientific Education and Research (IISER, Thiruvananthpuram) under supervision of eminent scientists. His research interests are inorganic ecofriendly/biomedical nanochemistry, carbon quantum dot technology, photochemistry, and asymmetric nanocatalysts. He has 5 years of research experience, with 4 national/international publications and 5 international conference papers/oral presentations.

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