Perspective

Natural products are the secondary metabolites isolated from tissues of plants and fermentation broth of microorganisms. In recent years, there has been a great surge in finding lead compounds from marine sources as well. These substances have pharmacological effects, hence are used to cure various diseases, but the natural occurrence in very minute quantities limits their usefulness. Isolation of the natural products therefore becomes a difficult, slow, expensive and inefficient process. The laboratory synthesis has made it possible to access these substances in large quantities.

Organic chemistry is fascinating science which deals with the isolation, structure elucidation and laboratory synthesis of these secondary metabolites with the similar properties, chemical composition and structural arrangement of atoms in the space. In other words, it's a replication of Nature by making artificial molecules for well being of mankind. Although, it is not always easy to construct these metabolites in the laboratory, the huge efforts put in by large number of organic chemists have made it possible to synthesize any molecule in the laboratory routinely. Organic chemist is therefore an architect of constructing molecules of Nature.

Isolation of natural product is a continuous process and novel molecules are being isolated everyday and many more will be isolated in future. Each of these metabolites has different functionalities and structural architecture. Therefore, lots of new strategies, methodologies, reagents and chemical reactivities are needed to be continuously explored for synthesizing natural products and their analogues.

I feel extreme satisfaction and overwhelming happiness for being the student of such fascinating science. During the research tenure, we, in our research group could study the small part of organic synthesis, which provided us a nice opportunity for learning a lot of basic and applied chemistry, not only from our work but also from the vast literature. Our research group has successfully utilized cyclic anhydrides as the precursors in the organic synthesis, wherein, I used homophthalic anhydride and their derivatives for the synthesis of few natural and synthetic products. I feel that the novel carbon-carbon and carbon-heteroatom bond forming approaches, which we have developed, are quite general in nature and would be useful in designing several important natural products and their hybrids for structure activity relationship studies. On the basis of literature and our contribution in this field, it can be said with assurance that cyclic anhydrides will spread their wings still wider over the field of organic and pharmaceutical chemistry in near future.