

Final Report

American Chemical Society National Meeting Presentation

Principal Investigator: Anwar A. Bhuiyan

Department of Physical Sciences

Arkansas Tech University

Russellville, AR 72801

B. Restatement of Problem: The purpose of this proposal was to get financial support to attend 249th American Chemical Society (ACS) National Meeting and Exposition from March 22 to March 26, 2015. We presented our exciting research results in this ACS conference.

C. Brief Review of Research Presented: This presentation deals with green chemistry for the synthesis of anthraquinone from anthracene in presence of a catalyst. Anthraquinone is an important and widely used chemical as a raw material for the production of vat dyes, as a seed dressing, pesticide and an additive in the chemical alkaline pulp processes in the pulp and paper industry. The widely used synthetic method involves extreme reaction conditions and use of hazardous reagents such as concentrated HNO₃ or chromic acid or a hexavalent chromium compound. Development of a greener oxidation of anthracene to anthraquinone is therefore of great interest. The simple VO(acac)₂ complex has been studied as catalyst for the oxidation of anthracene to anthraquinone in acetyl acetate using the green oxidant, hydrogen peroxide. Therefore, in this study, we have attempted to determine which layer, aqueous or organic, retains the catalyst and how efficient the catalyst can be recovered and recycled. In addition to results on the robustness of the catalyst, we presented data on the nature of the catalytically active species and the effect of pH on the catalysis.

D. Outcomes and Experiences: ACS National meeting is considered to be the most respected and prestigious scientific meetings for chemistry and chemical sciences in the whole world. Thousands of chemists attended this meeting and presented their latest research results and findings. The technical program consists of more than 8000 scientific presentation and more than 1000 scientific companies from all over the world brought their latest instrumental developments in this meeting. This was a great opportunity for professional development and collaboration. This meeting was the excellent venue for scientific networking, sharing exciting research results and discussing various issues regarding research instrumentation. This meeting was very helpful to get new research ideas and directions.

E. Conclusion: ACS maintains and publishes the data base of all the abstracts presented in the meeting. The results of this presentation will be included in a research manuscript and the manuscript will be submitted for publication. Attending this meeting helped me in professional development.