LIST OF PUBLICATIONS

1. "Synthesis of 5-aryl-3*H*-[1,3,4]oxadiazol-2-ones from *N*′-(chloro-aryl-methylene)-*tert*-butylcarbazates using basic alumina as an efficient and recyclable surface under solvent-free condition" Kamalesh Debnath, Sudipta Pathak, Animesh Pramanik, ***Tetrahedron Letters***, 2013, *54*, 896-899

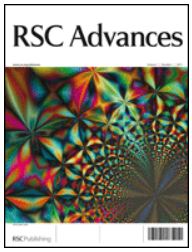
2. "Facile synthesis of ninhydrin and isatin based hydrazones in water using PEG-OSO_3H as a highly efficient and homogeneous polymeric acid-surfactant combined catalyst" Kamalesh Debnath, Sudipta Pathak, Animesh Pramanik, ***Tetrahedron Letters*****,** 2013, *54*, 4110-4115.

3. "Silica sulfuric acid: an efficient reusable heterogeneous solid support for the synthesis of 3H,3′H-spiro[benzofuran-2,10isobenzofuran]-3,3′-diones under solvent-free condition" Kamalesh Debnath, Sudipta Pathak, Animesh Pramanik, ***Tetrahedron Letters***, 2014, *55*, 1743-1748.

4. "Heterogeneous mebitallic $ZnFe_2O_4$ nanopowder catalysed facile four component reaction for the synthesis of spiro[indoline-3,2′-quinoline] derivatives from isatins in water medium" Kamalesh Debnath, Animesh Pramanik, ***Tetrahedron Letters***, 2015, *56*, 1654–1660.

5. "Magnetically separable Fe_3O_4-SO_3H nanoparticles as an efficient solid acid support for the facile synthesis of two types of spiroindole fused dihydropyridine derivatives under solvent free-conditions" Kamalesh Debnath, Krishnadipti Singha, Animesh Pramanik, ***RSC Adv.***, 2015, *5,* 31866–31877.

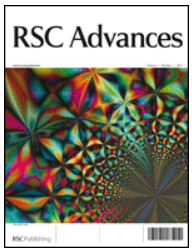
6. “Facile one-pot three component synthesis of 2,3-disubstituted isoindolin-1-ones using ZrO_2 nanoparticles as a reusable dual acid-base solid support under solvent-free condition” Kamalesh Debnath, Sayan Mukherjee, Chandan Bodhak, Animesh Pramanik, ***RSC Adv.***, 2016, *6,* 21127-21138.



7. “Synthesis of biologically important phthalazinones, 2,3-benzoxazin-1-ones and isoindolinones from ninhydrin and their antimicrobial activity” Sudipta Pathak, Kamalesh Debnath, Sk Tofajjen Hossain, Samir Kumar Mukherjee, Animesh Pramanik**,** ***Tetrahedron Letters****,* 2013,*54*, 3137-3143.

8. “Silica sulfuric acid: a reusable solid catalyst for one pot synthesis of densely substituted pyrrole-fused isocoumarins under solvent-free condition” Sudipta Pathak, Kamalesh Debnath, Animesh Pramanik, ***Beilstein Journal of Organic Chemistry***, 2013, *9,* 2344-2353.

9. “Facile cyclization in the synthesis of highly fused diaza cyclooctanoid compounds using retrievable nano magnetite-supported sulfonic acid catalyst” Sudipta Pathak, Kamalesh Debnath, Md. Masud Rahaman Mollick, Animesh Pramanik, ***RSC Adv.***, 2014, *4,* 23779–23789.



10. “Facile synthesis of of 3*H*,3′*H*-spiro[benzofuran-2,1′-isoindole]-3,3′-diones using monobromomalononitrile (MBM) as an efficient organo-brominating agent” Ashis Kundu, Sudipta Pathak, Kamalesh Debnath, Animesh Pramanik, ***Tetrahedron Letters***, 2014, *55*, 3960–3968.

GENERAL REMARKS

Numbering of schemes, tables, figures and compounds are done separately in each chapter of the dissertation. The references have been cited at the end of the respective chapter of the thesis. Starting materials and solvents were purchased from commercial suppliers and used without further purification.

Petroleum ether (60-80 ^{0}C) has been used in purification and crystallization of compounds. Extracts of products in organic solvents were generally washed with saturated aqueous solution of sodium chloride and dried over anhydrous sodium sulphate (Na_2SO_4) in all cases. The crude residues were purified in each case by column chromatography (silica gel, 60-120 mesh). All chromatography experiments were monitored by TLC. Melting points were determined in open capillary tubes and were uncorrected. IR spectra were recorded on a Perkin-Elmer 782 spectrophotometer. ^{1}H NMR (300 MHz) and ^{13}C NMR (75 MHz) spectra were recorded on Bruker 300 MHz instrument in $CDCl_3$ or DMSO-d_6. Elemental analyses (C, H and N) were performed using Perkin-Elmer 240C elemental analyzer. HRMS was performed with a QTOF I (quadrupole-hexapole-TOF) mass spectrometer. The X-ray diffraction data for crystallized compounds were collected with MoKα radiation at 296K using the Bruker APEX-II CCD System. The crystals were positioned at 50mm from the CCD. Frames were measured with a counting time of 5s. Data analyses were carried out with the Bruker APEX2 and Bruker SAINT program. The structures were solved using direct methods with the Shelxs97 program (Sheldrick, 2008). The morphological analysis of the resultant nanoparticles was confirmed by HRTEM, using a HRTEM, JEOL JEM 2010 at an accelerating voltage of 200kV and fitted with a CCD camera. The crystallinity of synthesized nanoparticles was determined and confirmed by XRD analysis. The diffractogram was documented from PANalytical, XPERT-PRO diffractrometer using Cu_α (λ= 1.54060) as X-ray source. ZEISS Evo-MA 10 Scanning Electron Microscope was used for SEM study.