LIST OF PATENT/PUBLICATIONS

(a) International Journals (SCI)

1. Udai P. Singh, **Raj K. Singh**, Yashuhiro Isogai and Yoshitsugu Shiro "Design and Synthesis of *De Novo* Peptide for Managnese Binding" **International Journal of Peptide Research and Therapeutics**, (2006) **12**, 379-385.
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3. **Raj K. Singh,** Nilesh K. Sharma, Udai P. Singh**,** R. Prasad **"**DNA damage by Cu(II-GlyAibHis, a tripeptide based on ATCUN motif" **Protein & Peptide Letters,** (2008) **15**, 13-19.
4. Udai P. Singh, Asish K. Sharma, Pooja Tyagi, Shailesh Upreti, **Raj K. Singh** "Mononuclear Manganese Carboxylate Complexes: Synthesis and Structural Studies" **Polyhedron**, (2006) **25**, 3628-3638.
5. Rajesh Kumar, **Raj K. Singh**, Manoj Kumar, S. K. Barthwal "Effect of Dc Glow Discharge Treatment on the Surface Energy and Surface Resistivity of Thin Film of Polypropylene (PP)" **Journal of Applied Polymer Science**, (2007) **104**, 767-772.
6. Ajay Kumar Jain, **Raj Kumar Singh**, Shalabh Jain, Jitendra Raisoni, "Cu (II) ion-selective electrode based on a newly synthesized Schiff-base chelate", **Transition Metal Chemistry**, (2008) **33**, 243-249.
7. **Raj Kumar Singh**, S. Prasad, Udai P. Singh, "Copper (II)-HisAibGly complex and its superoxide dismutase activity" **Protein & Peptide Letters**, (2010), **17**(2), 260-268.
8. P. K. Chaudhary, **Raj Kumar Singh**, I. M. Mishra, Shri Chand, "Kinetics of Catalytic Thermal Pretreatment (Catalytic Thermolysis) of Distillery Wastewater and Bio-Digester Effluent of Alcohol Production Plant at Atmospheric Pressure" **International Journal of Chemical Reactor Engineering**, (2010), **8,** A22.
9. **Raj Kumar Singh**, Vimal Chandra Srivastava, Udai P. Singh, A Solution Study of the Interaction of the Cu(II) Ions with HisGlyGlyTrp Tetrapeptide and Its Evaluation as Superoxide Dismutase Mimetic Complex, **Protein & Peptide Letters**, (2011), **18**(12), 1280-1289**.**

10. AK Singh, **RK Singh,** A Search for Ecofriendly Detergent / Dispersant Additives for Vegetable-Oil based Lubricants, **Journal of Surfactants and Detergents**, (2012), **15**(4), 399-409.
11. **R.K. Singh,** O.P. Khatri, A scanning electron microscope based new method for determining degree of substitution of sodium carboxymethyl cellulose, **Journal of Microscopy**, (2012), **246**(1), 43-52.
12. **Raj K. Singh**, Arun K. Singh, Optimization of Reaction Conditions for Preparing Carboxymethyl Cellulose from Corn Cobic Agricultural Waste, **Waste Biomass Valorization**, (2013), **4**(1), 129-137.
13. P. Kumar, **Raj K.Singh**, N. Rawat, P. B. Barman, S. C. Katyal, H. Jang, H.-No Lee, R. Kumar, A novel method for controlled synthesis of nanosized hematite (α-Fe2O3) thin film on liquid–vapor interface, **Journal of Nanoparticle Research**, (2013), **15**, 1532-1544.
14. **Raj K. Singh,** Methylcellulose synthesis from corn cobs: Study of the effect of solvent conditions on product properties by thermal analysis, **Journal of Thermal Analysis and Calorimetry**, (2013), **114**(2), 809–819.
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16. **Raj K. Singh**, Om P. Sharma, and Arun K. Singh "Evaluation of Cellulose Laurate Esters for Application as Green Biolubricant Additives" **Ind. Eng. Chem. Res.** (2014), **53** (25), 10276–10284.
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chloride) and study of their comparative antifriction property" **J. Ind. Eng. Chem.** (2015), **24**, 14–19.

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24. **Raj K. Singh**, Aruna kukrey, Gananath D Thakre, Neeraj Atrey and S S Ray "Development of new ecofriendly detergent/dispersant/antioxidant/antiwear additives from L-histidine for biolubricant applications" **RSC Adv.**, (2015), **5**, 37649-37656.
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33. Kamal Kumar, Anand Singh, Samir K. Maity, Manoj Srivastava, Manisha Sahai, **Raj K. Singh**, Madhukar O. Garg "Rheological studies of performance grade bitumens prepared by blending elastomeric SBS (styrene butadiene styrene) co-polymer in base bitumens" **J. Ind. Eng. Chem.** 2016, 44, 112–117.
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35. **Raj K. Singh**, Aruna Kukrety, Om P. Sharma, Mukesh K. Poddar,Neeraj Atray, and Siddharth S. Ray "Synthesis of a Novel Efficient Antioxidant for Use in Lubes and Biodiesel" **Petroleum Chemistry**, 2017, 57 (1) 100–105.
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37. **Raj K. Singh**, Aruna Kukrety, Rakesh C. Saxena, Ajay Chouhan, Suman L. Jain and Siddharth S. Ray "Phosphazene based novel organo-inorganic hybrid salt: Synthesis, characterization and performance evaluation as multifunctional additive in polyol" **RSC Advances**, 2017, 7, 13390-13397.
38. Aruna Kukrety, **Raj K. Singh**, Siddharth S. Ray "Development of a Biodegradable/Ecofriendly Turbine Lubricant from a Novel Polyalkylene Glycol Ester" **Waste and Biomass Valorization**, 2017 (DOI: 10.1007/s12649-017-9874-4).
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evaluation of N,N-dimethylacrylamide-C18-alkylacrylate polymers as multifunctional lube oil additives" **Advances in Polymer Technology**, 2017 (**DOI:** 10.1002/adv.21826).

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41. Praveen K. Khatri, Mounika Aila, Aruna Kukrety, Piyush Gupta, Rakesh C. Saxena, **Raj K. Singh**, Suman L. Jain "High-Performance Multifunctional Fuel Additives Derived from Renewable Fatty Acids and Phosphazene" **Journal of the American Oil Chemists' Society** 2017, 94, 1111–1119.

42. Aruna Kukrety, Ekta Faujdar, **Raj K. Singh**, Siddharth S. Ray, Tailoring strategies of polyalkylene glycol ester for varied lube applications, **Polymer Bulletin**, 2017, (DOI: 10.1007/s00289-017-2126-8).

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44. A. Chouhan, H. P. Mungse, O. P. Sharma, **R. K. Singh**, O. P. Khatri, Chemically functionalized graphene for lubricant applications: Microscopic and spectroscopic studies of contact interfaces to probe the role of graphene for enhanced tribo-performance, **Journal of Colloid and Interface Science**, 2017, (DOI: 10.1016/j.jcis.2017.11.072).

45. Manisha Sahai, **Raj K. Singh**, Aruna Kukrety, Ajay Kumar, Siddharth S. Ray, V. K. Chhibber, and Sanat Kumar, Application of Triazine-Based Gemini Surfactants as Viscosity Reducing Agents of Tar Sand Derived Bituminous Crude, **Energy & Fuels**, 2018, (DOI: 10.1021/acs.energyfuels.7b03596).

46. Pradeep Kumar, Ekta Faujdar, Raj K. Singh, Subham Paul, Aruna Kukrety, Vijay K. Chhibber, Siddharth S. Ray, High CO_2 absorption of *O*-carboxymethylchitosan synthesised from chitosan, **Environmental Chemistry Letters**, 2018, (DOI: 10.1007/s10311-018-0713-z).

(b) Non-SCI journals

47. Parmesh Kumar Chaudhari, Bidyut Majumdar, **Raj Kumar Singh** and Shri Chand, "Treatment of Biodigester Effluent : Catalytic Thermal Treatment (Catalytic

Thermolysis) with Energy Recovery Followed by Wet Oxidation" **Journal of Environmental Research And Development,** (2009) **4**(2), 497-505.

48. Rumi Choudhary, PK Chaudhari , Amit Keshav and **RK Singh,** Synthesis and characterization of some Cobalt Phthalocyanine Carboxylamide used in the Merox Process, **Research J. Engineering and Technology,** 2010), 1(1), 24-26.

(c) Conference/Symposium

49. Udai P. Singh, **Raj K. Singh** and Y. Isogai "Artificial Design of Manganese Containing Superoxide Dismutase" Third Symposium on Advances in Bioinorganic Chemistry (SABIC-2004) *in Conjunction with* Second Asian Biological Inorganic Chemistry Conference (AsBIC-II) December 5-10, 2004, Goa, India.
50. Asish K. Sharma, Pooja Tyagi, **Raj K. Singh** and Udai P. Singh "Manganese Carboxylate Complexes: Synthesis and Structural Studies" XI-Modern Trend in Inorganic Chemistry, Indian Institute of Technology, New Delhi, P-61, December 8 -10, 2005, (**Awarded Best Poster**).
51. **Raj K. Singh**, Sudhanad Prasad, Udai P. Singh "Model Peptide for Cu(II) Binding of Prion Protein's Octapeptide Repeated Sequence" First Indian Peptide Symposium, Acharaya N. G. Ranga Agricultural University, Hyderabad, Oral Presentation, February 22-23, 2007.
52. **Raj K. Singh** and Udai P. Singh "Construction of artificial cytochrome monooxygenases on the basis of P450 BM-3 from *Bacillus megaterium*" 2nd Mid Year Symposium of Chemical Research Society of India, Indian Institute of Technology Guwahati, July 21, 2007.
53. **Raj Kumar Singh**, Vimal Chandra Srivastava, Udai P. Singh "Synthesis of Cu(II)-HisAibGly complex and its application in the oxidation of linoleic acid" Poster; Page-63, National Conference on Emerging Trends in Chemistry-Biology Interface (ETCBI-2011) at Department of Chemistry, DSB Campus, Kumaun University, Nainital-263 002, Kumaun University on Nov. 03-05, 2011.
54. **RK Singh**, GM Bahuguna, Bhawna Naudiyal, OP Sharma, Raghuvir Singh "Lubricity studies of synthesized dodecenyl succinate derivatives of mono, di and poly saccharides" Oral-35; Page-120, 6th Uttarakhand State Science & Technology Congress, at Kumaun University, Nainital, SSJ campus, Almora, organized by Uttarakhand State Council for Science and Technology on Nov. 14-16, 2011.
55. **Raj Kumar Singh**, Om Prakash Khatri "A new green method based on SEM-EDX for determining degree of substitution in polysaccharide ethers" Oral A001; Page 32,

International Symposium on Recent Advances in "Green Chemistry" and "Chromatography Sciences" at Manav Rachna International University Faridabad, Indian Society of Analytical Scientists (Delhi Chapter) on Jan. 12-14, 2012.

56. **Raj Kumar Singh**, Om P. Sharma, A. K. Singh "Development of viscosity modifier for aqueous lube from corn agrowaste" Indo-US workshop on Green Chemistry for Environments & Sustainable Development at Hotel Pacific, Dehradun organized by Department of Chemistry, HNB Garhwal University, Srinagar on March 11-13, 2012.
57. Raghuvir Singh, **Raj Kumar Singh**, O.P. Sharma, Anshul Verma, G.M.Bahuguna, L.N.ShivaKumar, Sandeep saran "Synthesis and characterization of cellulose palmitate esters for biolubricant applications" Oral-48; Page 135, 7th Uttarakhand State Science and Technology Congress-2012 at Graphic Era UniversityDehradun (Uttarakhand) Organized by Uttarakhand State Council for Science and Technology on Nov. 21– 23, 2012.
58. **Raj Kumar Singh**, Om. P. Sharma "Tribological performance of synthesized cellulose laurate esters in N-Butylpalmitat/-Stearat for biolubricant applications" Oral-17; Page 35; National Conference on Innovative Molecules for Sustainable Future NCIMSF-2013 at Thapar University, Patiala School of Chemistry and Biochemistry, Thapar University-Patiala on 24-26th Oct., 2013.
59. G.M.Bahuguna, Raghuvir Singh, **R. K. Singh** "IR spectral Study of the hydrogen bonding in methylcellulose and DS determination by OH stretching peak symmetry distortion" Oral-30; Page 160; 8th Uttarakhand State Science and Technology Congress-2013 at Doon University, Dehradun organized by Uttarakhand State Council for Science and Technology on 26-28th Dec., 2013.
60. Neeraj Atray, D. P. Bangwal, Jyati Trivedi, Garima Singh, P. Nagendrama, **Raj Kumar Singh**, A. K. Chatterjee, D. K. Adhikari "Effect of additives on biodiesel stability" P-36; International Conference on "Nano, Bio & Material sciences" ICONBMS -2014 at Hyderabad organized by Department of Physics, Nizam College, Osmania University, Hyderabad-500001 on 8-10th, Jan. 2014.
61. **Raj K. Singh**, Aruna Kukrety, Neeraj Atray, Gajendra M. Bahuguna, Sandeep Saran "Synthesis of chitosan schiff base fatty ester and study of its antioxidant & tribological properties in N-butyl palmitate/stearate for application as biolube MFA" P-62; Page 121; International conference on challenges in chemistry and biology of carbohydrate, CARBO XXIII at Dehradun organized by FRI (ICFRE) Dehradun & Association of carbohydrate chemists and technologists, India (ACCTI) on 20-22th Jan., 2014.

62. Subodh Kumar, **Raj Kumar Singh**, Suman L. Jain "Functionalization of chitosan with metal acetyacetonates and their uses in chemical fixation of carbon dioxide" P-90; Page 150; International conference on challenges in chemistry and biology of carbohydrate, CARBO XXIII at Dehradun organized by FRI (ICFRE) Dehradun & Association of carbohydrate chemists and technologists, India (ACCTI) on 20-22th Jan., 2014.
63. **Raj K. Singh**, Aruna Kukrety, Gananath D. Thakre, Siddharth S. Ray "Triboevaluation of Newly Synthesized Ecofriendly Multifunctional Biolubricant Additives From Histidine" National Conference on Recent Developments on Non Conventional Energy Systems, NCRDNCES 2014 at DIT University, Dehradun Organized by DIT University, Dehradun on December 22-23, 2014.
64. G. M. Bahuguna, **Raj K. Singh**, Aruna Kukrety, Raghuvir Singh, Y. K. Sharma, "Structure−Activity Relationship of Synthesized Histidine Based Lubricant Additives" National Seminar cum Workshop on Advances, Perspectives & Challenges in Chemical Sciences, CHEMCON 2015 at SBSPGI, Dehradun Organized by Department of Applied Chemistry, Sardar Bhagwan Singh Post Graduate Institute of Biomedical Sciences & Research, Dehradun on February 11-12, 2015.
65. G. M. Bahuguna, **Raj K. Singh**, Raghuvir Singh, Sandeep Saran, Y. K. Sharma, Partially carboxymethylated pearl millet (bajra) cob agro waste and its utilization in Cu(II) removal 9th Uttarakhand State Science and Technology Congress 2014-15 (9th USSTC) at UCOST, Vigyan Dham, Jhajra, Dehradun Organized by Uttarakhand State Council for Science and Technology at Dehradun on 26-28th February, 2015.
66. **Raj K. Singh**, Aruna Kukrety, Om P. Sharma, Siddharth S. Ray "Synthesis of a novel phenolic ester and its performance evaluation as antioxidant additive in polyol" National Conference on Interdisciplinary Approaches in Chemical Sciences (**IACS-2015**) organized by Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi on 16th, December 2015 (Oral Presentation).
67. **G. M. Bahuguna**, Aruna Kukrety, Raj Kumar Singh, Siddharth S. Ray "Study of a novel triazine derivative as a multifunctional lubricant additive for biolubricant" 10th Uttarakhand State Science and Technology Congress (USSTC) 2014-15 at UCOST Campus, Vigyan Dham, Jhajra via Premnagar, Dehradun (UK) on 10-12th February, 2016 (Oral Presentation, ORAL-14).
68. Praveen K. Khatri, Mounika Aila, **Raj Kumar Singh**, Suman L. Jain, "Fatty acid functionalized phosphazenes as novel and high performance multifunctional fuel additives" The 10th International Symposium on Fuels & Lubricants (**ISFL-2016)**

during April 18-20, 2016 in Hotel Vivanta by Taj Surajkund, NCR Delhi, Faridabad, India (Poster ID No. 013).

69. **Raj K. Singh**, Aruna Kukrety, Om P. Sharma, Neeraj Atray, Siddharth S. Ray "Synthesis of a novel phenolic-ester based antioxidant and its performance evaluation in polyol, biodiesel and blended diesel" UGC sponsored National Conference on "Global challenges- Role of Science and Technology in Imparting Their Solutions" **GCRSTS 2016** on April 23-24, 2016 organized by TIT&S Bhiwani in association with ISAS Delhi Chapter (Oral Presentation, CAE-136).
70. Praveen K. Khatri, Mounika Aila, **Raj Kumar Singh**, Suman L. Jain "Fatty acids modified phosphazene as multifunctional fuel additives" National Conference on "Alternate Energy Resources, Environment Protection and Global Economic Growth" **NCAERG 2016,** Sept. 9-10, 2016 at DIT University, Dehradun.
71. **Raj K. Singh "**A footstep towards the development of eco-friendly lubricant additives from biomaterials" National Conference on Recent Advances in Chemical Sciences (**NCRACS – 2016**) at Chemistry Department, M. M. University Mullana, Haryana, 11-12th November 2016.
72. Ajay Chouhan, Om P. Sharma, **Raj K. Singh**, Om P. Khatri **"**3,5-Di-tert-butyl-4-hydroxybenzaldehyde Functionalized Graphene Oxide as a Novel Multi-Functional Additive for Lubricant Applications" National Tribology Conference (NTC- 2016) at Department of Mechanical Engineering, BHU Varanasi, U.P. Organized by National Tribology Society**,** December 8 – 10, 2016.
73. Gajendra M. Bahuguna, Aruna Kukrety, **Raj K. Singh**, Suman L. Jain, Siddharth S. Ray "Synthesis of branched chain fatty ester of microcrystalline cellulose and its evaluation as VII and PPD additive for lubricant applications" 11th Uttarakhand State Science Congress (**USSTC**) at Organized by UCOST, Dehradun, 2-4 March, 2017.
74. **Raj K. Singh**, Aruna Kukrety, Siddharth S. Ray "Waste biomass valorisation through developing eco-friendly additives from sustainable biomaterials" 4th RINCs (4th 3R International Scientific Conference on Material Cycles and Waste Management) at India Habitat Center, New Delhi, India Organized by CSIR-IIP from 8 - 10th March, 2017
75. Ekta Faujdar, **Raj K. Singh**, Aruna Kukrety, Suman L. Jain, Siddharth S. Ray, "Synthesis, characterization and performance evaluation of (alkyl acrylate-*co*-maleic anhydride) based amide copolymers as novel multifunctional additives for lube oil" in National Conference on National symposium on Shaping the energy future,

challenges & Opportunities (SEFCO-2017), on May 11-12, 2017 at CSIR-IIP Dehradun, P-38 page 64.

76. **Raj K. Singh** "Development of novel acrylate based polymeric materials for lubricant additive applications" International Conference on Materials Research and Technology ICMRT-2017 at Aggarwal College Ballabgarh, Haryana organized by Indian Society for Analytical Scientists (ISAS)-Delhi Chapter on 10-11 July 2017.
77. Ekta Faujdar, Himani Negi, Aruna Kukrety, Vishwas Saini, **Raj K. Singh**, Neeraj Atray, Siddharth S. Ray "Synthesis and characterization of triazole-based novel multifunctional additives for lubes and fuels" in Contemporary Facets in Organic Synthesis (CFOS 2017) organized by Department of Chemistry, IIT Roorkee on 22_{nd}-24^{th} December, 2017.
78. Ekta Faujdar, Himani Negi, Sundram Sharma, Vishwas Saini, **Raj K. Singh**, "Molecular characterization of synthesized alkyl acrylate based copolymers with incorporated amide moiety and their evaluation as multifunctional lubricant additive" in International Conference on Advances in Analytical Sciences (ICAAS – 2018) at CSIR-Indian Institute of Petroleum Dehradun on 15^{th} – 17^{th} March 2018.
79. Himani Negi, Ekta Faujdar, kamal Kumar, Sundram Sharma, **Raj K. Singh**, Manoj Srivastava, Siddharth. S Ray "Use of Novel Chitosan-Based Cationic Surfactant as Viscosity Modifier for the Bituminous Short Residue" 11^{th} International Symposium on Fuels & Lubricants (ISFL-2018) at Hotel Vivanta by Taj Surajkund, NCR Delhi on 15-17^{th} April 2018.