- Abbas N., Deeba F., Irfan M., Butt M. T., Jamil N. and Khan R. A. (2014). Treatability
  Study of Arsenic, Fluoride and Nitrate from Drinking Water by Adsorption
  Process. *Journal of the Chemical Society of Pakistan*, 36(5):837.
- Abdullah E. A., Abdullah A. H., Zainal Z., Hussein M. Z. and Ban T. K. (2012). Bismuth Basic Nitrate as a Novel Adsorbent for Azo Dye Removal. *E-Journal* of Chemistry, 9(4):1885-1896.
- Afkhami A., Madrakian T. and Karimi Z. (2007). The effect of acid treatment of carbon cloth on the adsorption of nitrite and nitrate ions. *Journal of Hazardous Materials*, 144:427–431.
- Agarwal G.S., Bhuptawat H. K. and Chaudhari S. (2006). Biosorption of aqueous chromium(VI) by Tamarindus indica seeds. *Bioresource Technology*, 97:949– 956.
- Ahn S.C., Oh S.Y. and Cha D.K. (2008). Enhanced reduction of nitrate by zerovalent iron at elevated temperatures. *Journal of Hazardous Materials*, 156(1/3):17–22.
- Akar S.T., Gorgulu A., Akar T. and Celik S. (2011). Decolorization of reactive blue 49 contaminated solutions by Capsicum annuum seeds: Batch and continuous mode biosorption applications. *Chemical Engineering Journal*, 168(1):125– 133.
- Ali I. and Gupta V. (2006). Advances in water treatment by adsorption technology. *Nature Protocols*. 1(6):2661-2667.

- Anand P.S. and Baxi D.R. (1978 a). Preparation and ion exchange properties of basic bismuth nitrate. *Indian Journal of Chemical Technology*, 16:198–200.
- Anand P.S. and Baxi D.R. (1978 b). Preparation and ion exchange properties of basic bismuth silicate. *Indian Journal of Chemical Technology*, 16:211–212.
- Anwar F. (2003). Assessment and analysis of industrial liquid waste and sludge disposal at unlined landfill site in arid climate. *Waste management*, 29(9):817-824.
- Ao L., Xia F., Ren Y., Xu J., Shi D., Zhang S., Gu L. and He Q. (2018). Enhanced nitrate removal by micro-electrolysis using Fe<sup>°</sup> and Surfactant modified activated carbon. *Chemical Engineering Journal*, 357:180-187.
- APHA (2005). Standard Methods for the Examination of Water & Wastewater. American Public Health Association, 20<sup>th</sup> ed., Washington D.C., U.S.A.
- Arora M., Eddy N.K., Mumford K.A., Baba Y., Perera J.M. and Stevens G.W. (2010). Surface modification of natural zeolite by chitosan and its use for nitrate removal in cold regions. *Cold Regions Science and Technology*, 62:92-97.
- Asadullah M., Jahan I., Ahmed M. B., Adawiyah P., Malek N. H. and Rahman M. S. (2014). Preparation of microporous activated carbon and its modification for arsenic removal from water. *Journal of Industrial and Engineering Chemistry*, 3: 20887–896.
- Asgari G., Roshani B. and Ghanizadeh G. (2012). The investigation of kinetic and isotherm of fluoride adsorption onto functionalize pumice stone. *Journal of Hazardous Materials*, 217–218:123–132.

- Ayoob S. and Gupta A.K. (2006). Fluoride in drinking water: A review on the status & stress effects. *Critical Reviews in Environmental Science and Technology*, 36:433–487.
- Ayoob S., Gupta A.K. and Bhat V.T. (2008). A conceptual overview on sustainable technologies for defluoridation of drinking water and removal mechanisms, *Critical Reviews in Environmental Science and Technology*, 38:401–470.
- Azizullah A., Khattak M.N.K., Richter P. and H\u00e4der D.P. (2011). Water pollution in Pakistan and its impact on public health-A review. *Environment International*, 37:479–497.
- Badruzzaman M., Westerhoff P. and Knappe D.R. (2004). Intraparticle diffusion and adsorption of arsenate onto granular ferric hydroxide (GFH). *Water Research*, 38(18):4002-4012.
- Banerjee K., Amy G.L., Prevost M., Nour S., Jekel M., Gallagher P.M. and Blumenschein C.D. (2008). Kinetic and thermodynamic aspects of adsorption of arsenic onto granular ferric hydroxide (GFH). *Water Research*, 42(13):3371-3378.
- Banerjee S., Gopesh C. S., Chattopadhyaya M.C. and Sharma Y. C. (2014). Kinetic & equilibrium modeling for the adsorptive removal of methylene blue from aqueous solutions on of activated fly ash. *Journal of Environmental Chemical Engineering*, 2:1870–1880.
- Banerji T. and Chaudhari S. (2017). A Cost-Effective Technology for Arsenic Removal: Case Study of Zerovalent Iron-Based IIT Bombay Arsenic Filter in West Bengal. Water and Sanitation in the New Millennium, 127–137.

- Bang S., Patel M., Lippincott L. and Meng X. (2005). Removal of arsenic from groundwater by granular titanium dioxide adsorbent. *Chemosphere*, 60(3):389– 397.
- Bansiwal A., Pillewan P., Biniwale R.B. and Rayalu S.S. (2010). Copper oxide incorporated mesoporous alumina for defluoridation of drinking water. *Microporous Mesoporous Mater*, 129:54-61.
- Barrabes N. and Sa J. (2011). Review: Catalytic nitrate removal from water, past, present and future perspectives. *Applied Catalysis B: Environmental*, 104:1–5.
- Barringer J.L. and Reilly P.A. (2013). Arsenic in Groundwater: A Summary of Sources and the Biogeochemical and Hydrogeologic Factors Affecting Arsenic Occurrence and Mobility. Current Perspectives in Contaminant Hydrology and Water Resources Sustainability. *INTECH*, 4:83-116. DOI:10.5772/55354.
- Basu T., Gupta K. and Ghosh U. C. (2010). Equilibrium & Thermodynamics on Arsenic(m) Sorption Reaction in the Presence of Background Ions Occurring in Groundwater with Nanoparticle Agglomerates of Hydrous Iron(III) + Chromium (HI) Mixed Oxide. *Journal of Chemical & Engineering Data*, 55:2039-2047.
- Basu T. and Ghosh U. C. (2011). Influence of groundwater occurring ions on the kinetics of As (III) adsorption reaction with synthetic nanostructured Fe(III)– Cr(III) mixed oxide. *Desalination*, 266(1-3): 25–32.
- Bayramoglu G., Altintas B. and Yakup Arica M. (2009). Adsorption kinetics and thermodynamic parameters of cationic dyes from aqueous solutions by using a

new strong cation-exchange resin. *Chemical Engineering Journal*, 152(2-3):339–346.

- Behnamfard A. and Salarirad M.M. (2009). Equilibrium and kinetic studies on free cyanide adsorption from aqueous solution by activated carbon. *Journal of Hazardous Materials*, 170:127–133.
- Berg M., Tran H.C., Nguyen T.C., Pham H.V., Schertenleib R. and Giger W. (2001). Arsenic contamination of ground water and drinking water in Vietnam: A human health threat. *Environmental Science & Technology*, 35:2621–2632.
- Bervas M., Yakshinskiy B., Klein L. C. and Amatucci G. G. (2006). Soft-Chemistry Synthesis and Characterization of Bismuth Oxyfluorides and Ammonium Bismuth Fluorides. *Journal of the American Ceramic Society*, 89(2):645–651.
- Bhakti K.S. (1977). Radiochemistry of bismuth nuclear science series. Academy of science-National research council, Washington D.C.
- Bhatnagar A., Ji M., Choi Y.H., Jung W., Lee S.H., Kim S.J., Lee G., Suk H., Kim H.S., Min B., Kim S.H., Jeon B.H. and Kang J.W. (2008). Removal of nitrate from water by adsorption onto zinc chloride treated activated carbon. *Separation Science and Technology*, 43:886–907.
- Bhatnagar A., Kumar E. and Sillanpaa M. (2010). Nitrate removal from water by nanoalumina: Characterization and sorption studies. *Chemical Engineering Journal*, 163:317–323.
- Bhatnagar A., Kumar E. and Sillanpa M. (2011). Fluoride Removal from Water by Adsorption–A review. *Chemical Engineering Journal*, 171(3):811-840.

- Bhatnagar A. and Sillanpa M. (2011). A review of emerging adsorbents for nitrate removal from water. *Chemical Engineering Journal*, 168(2):493-504.
- Bhaumik M., Noubactep C., Gupta V. K., McCrindle R. I. and Maity A. (2015). Polyaniline/Fe<sup>°</sup> composite nanofibers: An excellent adsorbent for the removal of arsenic from aqueous solutions. *Chemical Engineering Journal*, 271:135– 146.
- Bibi S., Farooqi A., Hussain K. and Haider N. (2015). Evaluation of industrial based adsorbents for simultaneous removal of arsenic and fluoride from drinking water. *Journal of Cleaner Production*, 87:882-896.
- BIS (2012). Specifications for Drinking Water, IS: 10500. Bureau of Indian Standard, Old Delhi, India.
- Biswas K., Gupta K. and Ghosh U. C. (2009). Adsorption of fluoride by hydrous iron(III)-tin(IV) bimetal mixed oxide from the aqueous solutions. *Chemical Engineering Journal*, 149(1-3):196–206.
- Bohart G.S. and Adam E.Q. (1920). Some aspects of the behavior of charcoal with respect to chlorine. *Journal of the American chemical society*, 42:523-544.
- Briand G.G and Burford N. (1999). Bismuth compounds and preparations with Biological or medicinal relevance. *Chemical Reviews*, 99(9):2601–2657.
- Bundschuh J., Litter M.I., Parvez F., Roman-Ross G., Nicolli H.B., Jean J.S., Liu C.W.,Lopez D., Armienta M.A., Guilherme L.R.G., Cuevas A.G., Cornejo L.,Cumbal L. and Toujaque. (2012). One century of arsenic exposure in Latin

America: A review of history and occurrence from 14 countries. *Science of the Total Environment*, 429:2–35.

- Caballeromesa J., Armendariz C. and Hardissondelatorre A. (2003). Nitrate intake from drinking water on Tenerife Island (Spain). *The Science of The Total Environment*, 302(1-3): 85–92.
- Camacho L.M., Torres A., Saha D. and Deng S. (2010). Adsorption equilibrium and kinetics of fluoride on sol-gel derived activated alumina adsorbents. *Journal of Colloid and Interface Science*, 349:307–13.
- Cameron S.G. and Schipper L.A. (2012). Hydraulic properties, hydraulic efficiency and nitrate removal of organic carbon media for use in denitrification beds, *Ecological Engineering*, 41:1–7.
- Cantu J., Gonzalez L. E., Goodship J., Contreras M., Joseph M., Garza C., Eubanks T.M. and Parsons J.G. (2016). Removal of arsenic from water using synthetic Fe<sub>7</sub>S<sub>8</sub> nanoparticles. *Chemical Engineering Journal*, 290:428–437.
- Cengeloglu Y., Tor A., Ersoz M. and Arslan G. (2006). Removal of nitrate from aqueous solution by using red mud. *Separation and Purification Technology*, 51:374-378.
- CGWB (2010). Ground water quality in shallow aquifers of India. Central Ground Water Board, Ministry of Water Resources, Government of India, pp. 13-14.
- CGWB (2014). Concept note on geogenic contamination of ground water in India, Central Ground Water Board, Ministry of Water Resources, Government of India.

- CGWB (2018). Ground water quality in shallow aquifer in India. Central Ground Water Board, Ministry of Water Resources, Government of India.
- CGWB (2019). Arsenic hot spot in ground water in India, Central Ground Water Board, Ministry of Water Resources (MOWR), Government of India.
- Chabani M., Amrane A. and Bensmaili A. (2006). Kinetic modelling of the adsorption of nitrates by ion exchange resin. *Chemical Engineering Journal*, 125(2):111– 117.
- Chabani M., Amrane A. and Bensmailia A. (2009). Equilibrium sorption isotherms for nitrate on resin Amberlite IRA 400. *Journal of Hazardous Materials*, 165:27– 33.
- Chai L., Wang Y., Zhao N., Yang W. and You X. (2013). Sulfate-doped Fe<sub>3</sub>O<sub>4</sub>/Al<sub>2</sub>O<sub>3</sub> nanoparticles as a novel adsorbent for fluoride removal from drinking water. *Water Research*, 47:4040-4049.
- Chakravarty S., Dureja V., Bhattacharyya G., Maity S. and Bhattacharjee S. (2002). Removal of arsenic from groundwater using low cost ferruginous manganese ore. *Water Research*, 36(3):625–632.
- Chatterjee S. and Woo S.H. (2009). The removal of nitrate from aqueous solutions by chitosan hydrogel beads. *Journal of Hazardous Materials*, 164:1012-1018.
- Chatterjee S., Lee D.S., Lee M.W. and Woo S.H. (2009). Nitrate removal from aqueous solutions by cross-linked chitosan beads conditioned with sodium bisulfate. *Journal of Hazardous Materials*, 166:508-513.

- Chaudhari S., Banerji T. and Kumar P. R. (2014). Domestic- and Community-Scale Arsenic Removal Technologies Suitable for Developing Countries. *Water Reclamation and Sustainability*, 155–182.
- Chaudhry S. A., Khan T. A. and Ali I. (2016). Zirconium oxide-coated sand based batch and column adsorptive removal of arsenic from water: Isotherm, kinetic and thermodynamic studies, *Egyptian Journal of Petroleum*, 26(2):553-563.
- Chen Y.M., Li C.W. and Chen S.S. (2005). Fluidized zero valent iron bed reactor for nitrate removal, *Chemosphere*, 59:753–759.
- Chen B., Zhu Z., Ma J., Qiu Y. and Chen J. (2013). Surfactant assisted Ce-Fe mixed oxide decorated multiwalled carbon nanotubes and their arsenic adsorption performance. *Journal of Materials Chemistry*, A1:11355-11367.
- Chen F., Wu Q., Lü Q., Xu Y. and Yu Y. (2015). Synthesis and characterization of bifunctional mesoporous silica adsorbent for simultaneous removal of lead and nitrate ions. Separation and Purification Technology, 151:225–231.
- Cheng Y. and Zhang H. (2018). Novel bismuth-based nano materials used for cancer diagnosis and therapy. *Chemistry—A European Journal*, 24:17405–17418.
- Chinnakoti P., Vankayala R. K., Chunduri A.L.A., Nagappagari L. R., Muthukonda S. V. and Kamisetti V. (2016). Trititanate Nanotubes as highly efficient adsorbent for fluoride removal from water: Adsorption performance and uptake mechanism. *Journal of Environmental Chemical Engineering*, 4A(4):4754-4768.

- Cho D. W., Jeon B. H., Jeong Y., Nam I. H., Choid U. K., Kumar R. and Songa H. (2016). Synthesis of hydrous zirconium oxide-impregnated chitosan beads and their application for removal of fluoride and lead. *Applied Surface Science*, 372:13–19.
- Christianson L., Knoot T., Larsen D., Tyndall J. and Helmers M. (2013). Adsorption potential of nitrate mitigation practices: an ecosystem services approach. *International Journal of Agricultural Sustainability*, 12(4):407–424.
- Christianson L., Lepine C., Tsukuda S., Saito K. and Summerfelt S. (2015). Nitrate removal effectiveness of fluidized sulfur-based autotrophic denitrification biofilters for recirculating aquaculture systems. *Aquacultural Engineering*, 68:10–18.
- Chuang C.L., Fan M., Xu M., Brown R.C., Sung S., Saha B. and Huang C.P. (2005). Adsorption of arsenic (V) by activated carbon prepared from oat hulls. *Chemosphere*, 61(4):478-483.
- Chubar N.I., Kouts V.S., Samanidou V.F., Gallios G.G., Kanibolotskiy V.A. and Strelko V.V. (2005). Adsorption of fluoride, chloride, bromide and bromate ions on a novel ion exchanger. *Journal of Colloid and Interface Science*, 291:67-74.
- Coulson J.M., Richardson J.F., Backhurst J.R. and Harker J.H. (1991). Particle Technology and Separation Processes. Chemical Engineering, Volume 2, Fourth Edition, PERGAMON Press, Headington Hill Hall, Oxford.
- CPCB (2008). Status of Groundwater Quality in India Part II. Central Pollution Control Board, New Delhi, India.

- Crini G. and Badot P. M. (2008). Application of chitosan, a natural amino polysaccharide, for dye removal from aqueous solutions by adsorption processes using batch studies: A review of recent literature. *Progress in Polymer Science*, 33(4):399-447.
- Czarnowski W., Wrzesniowska K. and Krechniak J. (1996). Fluoride in drinking water and human urine in Northern and Central Poland. *Science of the Total Environment*, 191:177–184.
- Dadwhal M., Sahimi M. and Tsotsis T. T. (2011) Adsorption Isotherms of Arsenic on Conditioned Layered Double Hydroxides in the Presence of Various Competing Ions. *Industrial & Engineering Chemistry Research*, 50:2220–2226.
- Daifullah A. A., Yakout S. M. and Elreefy S. A. (2007). Adsorption of fluoride in aqueous solutions using KMnO<sub>4</sub>-modified activated carbon derived from steam pyrolysis of rice straw. *Journal of Hazardous Materials*, 147(1):633–643.
- Dayananda D., Sarva V. R., Prasad S. V., J Arunachalam. and Ghosh N. N. (2014). Preparation of CaO loaded mesoporous Al<sub>2</sub>O<sub>3</sub>: Efficient adsorbent for fluoride removal from water. *Chemical Engineering Journal*, 248:430–439.
- Delorme F., Seron A., Gautier A. and Crouzet C. (2007). Comparison of the fluoride, arsenate and nitrate anions water depollution potential of a calcined quintinite, a layered double hydroxide compound. *Journal of Materials Science*, 42(14):5799–5804.
- Demiral H. and Gunduzoglu G. (2010). Removal of nitrate from aqueous solutions by activated carbon prepared from sugar beet bagasse. *Bioresource Technology*, 101:1675–1680.

- Deschamps E., Ciminelli V. S. T. and Höll W. H. (2005). Removal of As(III) and As(V) from water using a natural Fe and Mn enriched sample. *Water Research*, 39(20):5212–5220.
- Devi R., Alemayehu E., Singh V., Kumar A. and Mengistie E. (2008). Removal of fluoride, arsenic and coliform bacteria by modified homemade filter media from drinking water. *Bioresource Technology*, 99:2269-2274.
- Dhar R.K., Biswas B.K., Samanta G., Mondal B.K., Chakraborti D., Roy S., Jabar A.,
  Islab A., Ara G., Kabir S., Khan A.W., Ahamed S.A. and Hadi S.A. (1997).
  Ground water arsenic calamity in Bangladesh. *Current Science*, 73:48–59.
- Diaz-Barriga F., Navarro-Quezada A., Grijalva M., Grimaldo M., Loyola Rodriguez J.P. and Ortiz M.D. (1997). Endemic fluorosis in Mexico. *Fluoride*, 30:233– 239.
- Doušova B., Machovic V., Koloušek D., Kovanda F. and Dornicak V. (2003). Sorption of As(V) Species from Aqueous Systems. *Water, Air, Soil and Pollution* 149:251-267.
- Dutta S., Manna K., Srivastava S. K., Gupta A. K. and Yadav M. K. (2020). Hollow Polyaniline Microsphere/Fe<sub>3</sub>O<sub>4</sub> Nanocomposite as an Effective Adsorbent for Removal of Arsenic from Water. *Scientific Reports*, 10(1):1-14.
- El-Nemr A. (2009). Potential of pomegranate husk carbon for Cr(VI) removal from wastewater: kinetic and isotherm studies. *Journal of Hazardous Materials*, 161:132–141.

- Elyanow D. and Persechino J. (2005). Advances in Nitrate Removal, GE Water and Process Technology, Technical Paper, Environmental Toxicology, Section Office of Environment.
- Ensie B. and Samad S. (2014). Removal of nitrate from drinking water using nano SiO<sub>2</sub>–FeOOH–Fe core–shell. *Desalination*, 347:1–9.
- Eskandarpour A., Onyango M.S., Ochieng A. and Asai S. (2008). Removal of fluoride ions from aqueous solution at low pH using schwertmannite. *Journal of Hazardous Materials*, 152: 571–9.
- Fan X., Parker D.J. and Smith M.D. (2003). Adsorption kinetics of fluoride on low cost materials. Water Research, 37:4929–4937.
- Faust S.D. and Aly O.M. (2013). Adsorption processes for water treatment. Burlington : Elsevier Science.
- Feenstra L., Van Erkel J. and Vasak L. (2007). Arsenic in groundwater: Overview and evaluation of removal Methods, International Groundwater Resources Assessment Centre, Report nr, SP 2007-2, pp. 1-20.
- Fritsche U. (1993). Removal of nitrates and other anions from water by yellow bismuth hydroxide. *Journal of Environmental Science and Health. Part A: Environmental Science and Engineering and Toxicology*, A28(9):1903–1913.
- Fruth V., Popa M., Berger D., Ionica C.M. and Jitianu M. (2004). Phases Investigation in the Antimony Doped Bi<sub>2</sub>O<sub>3</sub> System. *Journal of the European Ceramic Society*, 24(6):1295–1299.

- Gaciri S.J. and Davies T.C. (1993). The occurrence and geochemistry of fluoride in some natural waters of Kenya. *Journal of Hydrology*, 143:395–412.
- Garelick H. and Jones H. (2008). Mitigating Arsenic Pollution. *Chemistry International*, 30(4).
- Gatseva P.D. and Argirova M.D. (2008). High-nitrate levels in drinking water may be a risk factor for thyroid dysfunction in children and pregnant women living in rural Bulgarian areas. *International Journal of Hygiene and Environmental Health*, 211:555–559.
- Ghiglieri G., Barbieri G., Vernier A., Carletti A., Demurtas N., Pinna R. and Pittalis D.
  (2009). Potential risks of nitrate pollution in aquifers from agricultural practices in the Nurra region, northwestern Sardinia, Italy. *Journal of Hydrology*, 379:339–350.
- Ghorai S. and Pant K.K. (2004). Investigations on the column performance of fluoride adsorption by activated alumina in a fixed-bed. *Chemical Engineering Journal*, 98(1-2):165-173.
- Ghosh U. C., Bandyopadhyay D., Manna B. and Mandal M. (2006). Hydrous Iron(III)-Tin(IV) Binary Mixed Oxide: Arsenic Adsorption Behaviour from Aqueous Solution. Water Quality Research Journal of Canada, 41(2):198–209.
- Ghosh A., Chakrabarti S. and Ghosh U. C. (2014). Fixed-bed column performance of Mn-incorporated iron(III) oxide nanoparticle agglomerates on As(III) removal from the spiked groundwater in lab bench scale. *Chemical Engineering Journal*, 248:18–26.

- GLAAS (2017). UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water. United Nations Water, Geneva, Switzerland.
- Gleick P.H. (1993). Water in Crisis: A Guide to the World's Freshwater Resources, Oxford University Press, New York.
- Goswami A. and Purkait M. K. (2012). The defluoridation of water by acidic alumina. *Chemical Engineering Research and Design*, 90(12):2316–2324.
- Green M. and Shelef G. (1994). Treatment of nitrate contaminated ground water for drinking purposes, In Zoller, U. (Ed.), Ground Water Contamination and Control. Marcel Deckker, Inc. New York, pp.587-606.
- Gu Z., Fang J. and Deng B. (2005). Preparation and evaluation of GAC-based ironcontaining adsorbents for arsenic removal. *Environmental Science & Technology*, 39(10):3833-3843.
- Guo H.R., Yu H.S., Hu H. and Monson R.R. (2001). Arsenic in drinking water and skin cancers: cell-type specificity (Taiwan, ROC). *Cancer Causes Control*, 12:909–916.
- Gupta K. and Ghosh U. C. (2009). Arsenic removal using hydrous nanostructure iron(III)-titanium(IV) binary mixed oxide from aqueous solution. *Journal of Hazardous Materials*, 161(2-3):884–892.
- Gupta M., Gupta H. and Kharat, D. S. (2018). Adsorption of Cu(II) by low cost adsorbents and the cost analysis. *Environment Technology and Innovation*. 10:91–101.

- Gupta V.K. and Suhas. (2009). Application of low-cost adsorbents for dye removal A review. *Journal of Environmental Management*, 90:2313–2342.
- Habuda-Stanić M., Kalajdžić B., Kuleš M. and Velić N. (2008). Arsenite and arsenate sorption by hydrous ferric oxide/polymeric material. *Desalination*, 229(1-3):1–9.
- Habuda-Stanić M., Nujić M., Romić Ž., Lončarić A., Ergović Ravančić M., and Kralj
  E. (2014). Arsenic preoxidation and its removal from groundwater using iron coagulants. *Desalination and Water Treatment*, 56(8): 2105–2113.
- Habuda-Stanić M., Ravančić M. and Flanagan A. (2014). A Review on Adsorption of Fluoride from Aqueous Solution. *Materials*, 7(9): 6317–6366.
- Habuda-Stanić M. and Nujić M. (2015). Arsenic removal by nanoparticles: A review. *Environmental Science and Pollution Research*, 22(11): 8094–8123.
- Hamoudi S., Saad R. and Belkacemi K. (2007). Adsorptive removal of phosphate and nitrate anions from aqueous solutions using ammonium-functionalized mesoporous silica. *Industrial & Engineering Chemistry Research*, 46:8806-8812.
- Han D. S., Song J. K., Batchelor B. and Abdel-Wahab A. (2013). Removal of arsenite (As(III)) and arsenate (As(V)) by synthetic pyrite (FeS<sub>2</sub>): Synthesis, effect of contact time, and sorption/desorption envelopes. *Journal of Colloid and Interface Science*, 392:311–318.
- Handa B.K. (1988). Fluoride occurrence in natural waters in India and its Harlow, UK, Harlow, Essex, England: Longman Scientific & Technical.

- Hasnat M.A., Agui R., Hinokuma S., Yamaguchi T. and Machida M. (2009). Different reaction routes in electrocatalytic nitrate/nitrite reduction using an H<sup>+</sup>conducting solid polymer electrolyte. *Catalysis Communications*, 10(7):1132-35.
- Hasnat M.A., Ahamad N., Nizam Uddin S.M. and Mohamed N. (2012). Silver modified platinum surface/H<sup>+</sup> conducting Nafion membrane for cathodic reduction of nitrate ions. *Applied Surface Science*, 258: 3309–3314.
- Hassan M.L., Kassem N.F., El-Kader A.H.A. (2010). Novel Zr(IV)/sugar beet pulp composite for removal of sulfate and nitrate anions. *Journal of Applied Polymer Science*, 117:2205-2212.
- He J. and Paul Chen J. (2014). A zirconium-based nanoparticle: Essential factors for sustainable application in treatment of fluoride containing water. *Journal of Colloid and Interface Science*, 416:227–234.
- He Y., Zhang L., An X., Wan G., Zhu W. and Luo Y. (2019). Enhanced fluoride removal from water by rare earth (La and Ce) modified alumina: Adsorption isotherms, kinetics, thermodynamics and mechanism. *Science of The Total Environment*, 688:184-198.
- Healy M.G., Ibrahim T.G., Lanigan G.J., Serrenho A. J. and Fenton O. (2012). Nitrate removal rate, efficiency and pollution swapping potential of different organic carbon media in laboratory denitrification bioreactors. *Ecological Engineering*, 40:198–209.
- Hell F., Lahnsteiner J., Frischherz H. and Baumgartner G. (1998). Experience with full scale electrodialysis for nitrate and hardness removal. *Desalination*, 117(1/3) :173–180.

- Hlavay J. and Polyak K. (2005). Determination of surface properties of iron hydroxide coated alumina adsorbent prepared for removal of arsenic from drinking water, *Journal of Colloid and Interface Science*, 284:71–77.
- Ho Y.S. and McKay G. (1999). Pseudo-second order model for sorption processes. *Process Biochemistry*, 34:451-465.
- Ho Y.S. (2004). Citation review of Lagergren kinetic rate equation on adsorption reactions. *Scientometrics*, 59(1):171-177.
- Hollemann A.F. and Wiberg E. (1960). Lehrbuch der Anorganischen Chmie. Berlin ed (47–56 edition), Germany.
- Hongtao L., Shuxia L., Hua Z., Yanling Q., Daqiang Y., Jianfu Z. and Zhiliang Z. (2018). Comparative study on synchronous adsorption of arsenate and fluoride in aqueous solution onto MgAlFe-LDHs with different intercalating anions. *RSC Advance*, 8:33301.
- Hosni K. and Srasra E. (2008). Nitrate adsorption from aqueous solution by Mg–Al– CO<sub>3</sub> layered double hydroxide. *Inorganic Materials*, 44:742–749.
- Howe H.E. (1968). In Hampel (Ed), The Encyclopedia of the Chemical Elements Reinhold Book Corporation, New York. <u>https://doi.org/10.1007/s11356-019-05547-7</u>.
- Hu G., Mian H.R., Dyck R., Mohseni M., Jasim S., Hewage K. and Sadiq R. (2019).Drinking Water Treatments for Arsenic and Manganese Removal and Health Risk Assessment in White Rock. *Canada, Exposure and Health*, 1-15.

- Huang C.P. and Ostovic F. B. (1978). Removal of Cadmium (II) by Activated Carbon Adsorption. *Environmental Engineering Division*, 104:863-878.
- Huang Y.H. and Zhang T.C. (2004). Effects of low pH on nitrate reduction by iron powder. *Water Research*, 38:2631–2642.
- Huang P.P., Cao C.Y., Wei F., Sun Y.B. and Song W.G. (2015). Mg-Al layered double hydroxides with chloride & carbonate ions as interlayer anions for removal of arsenic & fluoride ions in water. *RSC Advance*, 5:10412–10417.
- Iesan C. M., Capat C., F. Ruta, and Udrea I. (2008). Evaluation of a novel hybrid inorganic/organic polymer type material in the arsenic removal process from drinking water. *Water Research*, 42:4327–4333.
- Ingallinella A. M., Pacini V. A., Fernandez R. G., Vidoni R. M. and Sanguinetti G. (2011). Simultaneous removal of arsenic and fluoride from groundwater by coagulation-adsorption with polyaluminum Chloride. *Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering*, 46:1288–1296.
- Islam M. and Patel R.K. (2007). Evaluation of removal efficiency of fluoride from aqueous solution using quick lime. *Journal of Hazardous Material*, 143:303-310.
- Islam M. and Patel R. (2009). Nitrate sorption by thermally activated Mg/Al chloride hydrotalcite-like compound. *Journal of Hazardous Materials*, 169:524–531.
- Islam M., Mishra P.C. and Patel R. (2010). Fluoride adsorption from aqueous solution by a hybrid thorium phosphate composite. *Chemical Engineering Journal*, 166:978–985.

- Islam M., Mishra P.C. and Patel R. (2010). Physicochemical characterization of hydroxyapatite and its application towards removal of nitrate from water. *Journal of Environmental Management*, 91:1883–1891.
- Islam M. and Patel R. (2011). Thermal activation of basic oxygen furnace slag and evaluation of its fluoride removal efficiency. *Chemical Engineering Journal*, 169(1-3):68-77.
- Ito T. and Yashida T. (1970). Adsorption and elution of chloride ion on bismuth (III) hydroxide. *Nippon Kagaku Zasshi*, 91(11):1054–1058.
- Jain S. and Jayaram R.V. (2009). Removal of fluoride from contaminated drinking water using unmodified and aluminium hydroxide impregnated blue lime stone waste. *Separation Science and Technology*, 44:1436-1451.
- Jain S., Bansiwal A., Biniwale R. B., Milmille S., Das S., Tiwari S. and Siluvai Antony
   P. (2015). Enhancing adsorption of nitrate using metal impregnated alumina.
   *Journal of Environmental Chemical Engineering*, 3:2342–2349.
- Jang J.H. and Dempsey B. A. (2008). Co-adsorption of Arsenic(III) and Arsenic(V) onto Hydrous Ferric Oxide: Effects on Abiotic Oxidation of Arsenic(III), Extraction Efficiency, and Model Accuracy. *Environmental Science & Technology*, 42(8):2893–2898.
- Jiménez-Nú<sup>n</sup>ez M.L., Solache-Ríos M., Chávez-Gardu<sup>n</sup>o J. and Olguín-Gutiérrez M.T. (2012). Effect of grain size and interfering anion species on the removal of fluoride by hydrotalcite-like compounds. *Chemical Engineering Journal*, 181–182:371–375.

- Jing C., Cui J., Huang Y. and Li A. (2012). Fabrication, Characterization, and Application of a Composite Adsorbent for Simultaneous Removal of Arsenic and Fluoride. *Applied Materials & Interfaces*, 4(2):714–720.
- Jin Z., Jia Y., Luo T., Kong L.T., Sun B., Shen W., Meng F.L. and Liu J.H. (2015). Efficient removal of fluoride by hierarchical MgO microspheres: Performance and mechanism study. *Applied Surface Science*, 357:1080–1088.
- Jin Z., Jia Y., Zhang K.S., Kong L.T., Sun B., Shen W., Meng F.L. and Liu J.H. (2016). Effective removal of fluoride by porous MgO nanoplates and its adsorption mechanism. *Journal of Alloys and Compounds*, 675:292-300.
- Kalaruban M., Loganathan P., Nguyena T. V., Nura T., Johir Md A. H., Nguyen T. H., Trinh M. V. and Vigneswaran S. (2019). Iron-impregnated granular activated carbon for arsenic removal: Application to practical column filters. *Journal of Environmental Management*, 239:235–243.
- Kamble S.P., Deshpande G., Barve P.P., Rayalu S., Labhsetwar N.K., Malyshew A. and Kulkarni B.D. (2010). Adsorption of fluoride from aqueous solution by alumina of alkoxide nature: Batch and continuous operation. *Desalination*, 264:15-23.
- Kameda T., Oba J. and Yoshioka T. (2015 a). Recyclable Mg–Al layered double hydroxides for fluoride removal: Kinetic and equilibrium studies. *Journal of Hazardous Materials*, 300:475–482.
- Kameda T., Oba J. and Yoshioka T. (2015 b). Kinetics and equilibrium studies on Mg–
  Al oxide for removal of fluoride in aqueous solution and its use in recycling. *Journal of Environmental Management*, 156:252–256.

- Kameda T., Yamamoto Y., Kumagai S. and Yoshioka T. (2018). Analysis of F<sup>-</sup> removal from aqueous solutions using MgO. *Journal of Water Process Engineering*, 25:54–57.
- Kapoor A. and Virarghavan T. (1997). Nitrate removal from drinking water-Review. *Journal of environmental engineering*, 123(4):371-380.
- Khan A.A. and Singh R.P. (1987). Adsorption thermodynamics of Carbofuran on Sn(IV) Arsenosilicate in H<sup>+</sup>, Na<sup>+</sup> & Ca<sup>2+</sup> Forms. *Colloids Surfaces*, 24:33-42.
- Khan T.A., Ali I., Singh V.V. and Sharma S. (2009). Utilization of fly ash as low cost adsorbents for the removal of methylene blue, malachite green and Rhodamine B dyes from textile waste water. *Journal of Environmental Protection Science*, 3:11-12.
- Khani A. and Mirzaei M. (2008). Comparative study of nitrate removal from aqueous solution using powder activated carbon and carbon nanotubes, 2nd International IUPAC Conference on Green Chemistry, Russia, pp.15.
- Khoei A.J., Joogh N.J.G., Darvishi P. and Rezaei K. (2019). Application of physical and biological methods to remove heavy metal, arsenic and pesticides, malathion and diazinon from water. *Turkish Journal of Fisheries and Aquatic Sciences*. 19(1):21-28.
- Koilraj P. and Kannan S. (2013). Aqueous fluoride removal using ZnCr layered double hydroxides and their polymeric composites: Batch and column studies. *Chemical Engineering Journal*, 234:406-415.

- Kolomiyets Ye.O., Belyakov V. N., Palchik A. V., Maltseva T. V. and Zheleznova L.
  I. (2017). Adsorption of Arsenic by Hybrid Anion–Exchanger Based on Titanium Oxyhydrate. *Journal of Water Chemistry and Technology*, 39(2): 80– 84.
- Kondo H., Ishiguro Y., Ohno K., Nagase M., Toba M. and Takagi M. (1999). Naturally occurring arsenic in the ground waters in the southern region of Fukuoka Pre-fecture. *Japan Water Research Center*, 33:1967–1972.
- Korngold E., Belayev N. and Aronov L. (2001). Removal of arsenic from drinking water by anion exchangers. *Desalination*, 141:81-84.
- Krause K.A. and Nelson F. (1956). Oak Ridge report. *Oak Ridge National Laboratory*, 2159:41.
- Kruse E. and Ainchil J. (2003). Fluoride variations in groundwater of an area in Buenos Aires Province. *Argentina: Environmental Geology*, 44:86–89.
- Ku Y. and Chiou H. M. (2002). The adsorption of fluoride ion from aqueous solution by activated alumina. *Water Air Soil Pollution*, 133:349–361.
- Kulshreshtha S.N. (1998). A Global Outlook for Water Resources to the Year 2025. *Water Resources Management*, 12(3):167–184.
- Kumar M. and Chakraborty S. (2006). Chemical denitrification of water by zerovalent magnesium powder. *Journal of Hazardous Materials*, B135:112–121.
- Kumar E., Bhatnagar A., Ji M., Jung W., Lee S.-H., Kim S.-J., Lee G., Song H., Choi J.-Y., Yang J.-S., Jeon, B.-H. (2009). Defluoridation from aqueous solutions by granular ferric hydroxide (GFH). *Water Research*, 43(2):490–498.

- Kumar N. S. and Goel S. (2010). Factors influencing arsenic and nitrate removal from drinking water in a continuous flow electro coagulation (EC) process. *Journal* of Hazardous Materials, 173:528-533.
- Kundu S. and Gupta A. K. (2006). Arsenic adsorption onto iron oxide-coated cement (IOCC): Regression analysis of equilibrium data with several isotherm models and their optimization. *Chemical Engineering Journal*, 122(1-2):93–106.
- Kundu M.C., Mandal B. and Hazra G.C. (2009). Nitrate and fluoride contamination in groundwater of an intensively managed agroecosystem: A functional relationship. *Science of the Total Environment*, 407:2771–2782.
- Kwon O.H., Kim J.O., Cho D.W., Kumar R., Baek S. H., Kurade M. B. and Jeon B.H.(2016). Adsorption of As(III), As(V) and Cu(II) on zirconium oxide immobilized alginate beads in aqueous phase. *Chemosphere*, 160:126-133.
- Laegreid M., Bockman O.C. and Kaarstad O. (1999). Agriculture, fertilizers and the environment, Norsk Hydro ASA, Porsgrunn, Norway, CABI Publishing, 294.
- Lagergren S. (1898). About the theory of So-Called Adsorption of Soluble Substances. Kungliga Svenska vetenskapsakademiens handlingar, 24:1-39.
- Lata S. and Samadder S.R. (2016). Removal of arsenic from water using nano adsorbents and challenges: A review. *Journal of Environmental Management*, 166:387-406.
- Lazaridis N.K. and Asouhidou D.D. (2003). Kinetics of sorptive removal of chromium(VI) from aqueous solutions by calcined Mg-Al-CO<sub>3</sub> hydrotalcite. *Water Research*, 37(12):2875-2882.

- Lenoble V., Chabroullet C., Al Shukry R., Serpaud B., Deluchat V. and Bollinger J.C. (2004). Dynamic arsenic removal on a MnO<sub>2</sub>-loaded resin. *Journal of Colloid and Interface Science*, 280(1):62–67.
- Lewis, A.S. (2007). Organic versus inorganic arsenic in herbal kelp supplements. *Environ Health Perspect*, 115(12):A575.
- Li Z., Deng S., Yu G., Huang J. and Lim V. C. (2010). As(V) and As(III) removal from water by a Ce–Ti oxide adsorbent: Behavior and mechanism. *Chemical Engineering Journal*, 161(1-2):106–113.
- Li W., Cao C.Y., Wu L.Y., Ge M.F. and Song W.G. (2011). Superb fluoride and arsenic removal performance of highly ordered mesoporous Aluminas. *Journal of Hazardous Materials*, 198:143–150.
- Li R., Li Q., Gao S. and Shang J. K. (2012). Exceptional arsenic adsorption performance of hydrous cerium oxide nanoparticles: Part A. Adsorption capacity and mechanism. *Chemical Engineering Journal*, 185-186:127–135.
- Lin T.F. and Wu J.K. (2001). Adsorption of arsenite and arsenate within activated alumina grains: equilibrium and kinetics. *Water Research*, 35(8):2049-2057.
- Lingamdinne L. P., Koduru J. R., Chang Y.Y., Kang S.H. and Yang J.K. (2019). Facile synthesis of flowered mesoporous graphene oxide-lanthanum fluoride nanocomposite for adsorptive removal of arsenic. *Journal of Molecular Liquids*, 279:32-42.
- Liou Y.H., Lo S.L., Lin C.J., Hu C.Y., Kuan W.H. and Weng S.C. (2005). Methods for accelerating nitrate reduction using zerovalent iron at near-neutral pH: effects

of H<sub>2</sub>-reducing pretreatment and copper deposition. *Environmental science and technology*, 39:9643–9648.

- Liu R., Gong W., Lan H., Yang T., Liua H. and Qua J. (2012) Simultaneous removal of arsenate and fluoride by iron and aluminum binary oxide: Competitive adsorption effects. *Separation and Purification Technology*, 92:100–105.
- Liu S., Kang S., Wang G., Zhao H. and Cai W. (2015). Micro/nanostructured porous Fe–Ni binary oxide and its enhanced arsenic adsorption performances. *Journal of Colloid and Interface Science*, 458:94–102.
- Liu S., Kang S., Wang H., Wang G., Zhao H. and Cai W. (2016). Nano sheets built flowerlike micro/nanostructured Bi<sub>2</sub>O<sub>2.33</sub> and its highly efficient iodine removal performances. *Chemical Engineering Journal*, 289:219–230.
- Liu Y. and Liu Y.J. (2008). Biosorption isotherms, kinetics and thermodynamics. *Separation and Purification Technology*, 61(3):229–242.
- Luther S., Borgfeld N., Kim J. and Parsons J. G. (2012). Removal of arsenic from aqueous solution: A study of the effects of pH and interfering ions using iron oxide nanomaterials. *Microchemical Journal*, 101:30–36.
- Madaeni S. (1999). The application of membrane technology for water disinfection. *Water Research*. 33(2):301-308.
- Madhavan N. and Subramanian V. (2004). Fluoride and arsenic content in contaminated groundwater of Rajasthan and West Bengal, National seminar on arsenic and fluoride contamination in groundwater at NERIWALM, Tezpur, India, pp. 268-274.

- Mahdavi S., Molodi P. and Zarabi M. (2018). Utilization of bare MgO, CeO<sub>2</sub>, and ZnO nanoparticles for nitrate removal from aqueous solution. *Environmental Progress & Sustainable Energy*, 37(6):1908–1917.
- Mahmood S.J., Taj N. and Praveen F. (2007). Arsenic, fluoride and nitrate in drinking water: The problem and its possible solution. *Research journal of environment science*, 1(4):179-184.
- Mahramanlioglu M., Kizilcikli I. and Bicer I.O. (2002). Adsorption of fluoride from aqueous solution by acid treated spent bleaching earth. *Journal of Fluorine Chemistry*, 115:41-47.
- Maliyekkal S.M., Sharma A.K. and Philip L. (2006). Manganese-oxide-coated alumina: A promising sorbent for defluoridation of water. *Water Research*, 40:3497-3506.
- Maliyekkal S. M., Shukla S., Philip L. and Nambi I.M. (2008). Enhanced defluoridation by magnesia amended activated alumina granules. *Chemical Engineering Journal*, 140(1-3):183-192.
- Maliyekkal S. M., Philip L. and Pradeep T. (2009). As(III) removal from drinking water using manganese oxide-coated-alumina: Performance evaluation and mechanistic details of surface binding. *Chemical Engineering Journal*, 153(1-3): 101–107.
- Mameri N., Yeddou A.R., Lounici H., Grib H., Belhocine D. and Bariou B. (1998). Defluoridation of septentrional Sahara water of North Africa by

electrocoagulation process using bipolar aluminium electrodes. *Water Research*, 32(5):1604–1610.

- Mandal B.K., Roychowdhury T., Samanta G., Basu G.K., Chowdhury P.P., Chanda C.R., Lodh D., Karan N.K., Dhar R.K., Tamili D.K., Das D., Saha K.C. and Chakraborti D. (1996). Arsenic in groundwater in seven districts of West Bengal, India: The biggest arsenic calamity in the world. *Current Science*, 70(11):976–998.
- Manna B. and Ghosh U. C. (2007). Adsorption of arsenic from aqueous solution on synthetic hydrous stannic oxide. *Journal of Hazardous Materials*, 144(1-2):522–531.
- Martinson C. A. and Reddy K. J. (2009). Adsorption of arsenic(III) and arsenic(V) by cupric oxide nanoparticles. *Journal of Colloid and Interface Science*, 336(2): 406–411.
- Matsunaga H., Yokoyama T., Eldridge R. J. and Bolto B. A. (1996). Adsorption characteristics of arsenic(III) and arsenic(V) on iron(III)-loaded chelating resin having lysine-N<sup>α</sup>, N<sup>α</sup>-diacetic acid moiety. *Reactive and Functional Polymers*, 29(3):167–174.
- McDonald A.T. and Kay D. (1988). Water resources: Issues and strategies, Harlow, Essex, England: Longman Scientific & Technical.
- McNeill L. S. and Edwards M. (1995). Soluble arsenic removal at water treatment plants. *Journal American Water Works Association*, 87(4):105–113.

- Meenakshi and Maheshwari R.C. (2006). Fluoride in drinking water and its removal. Journal of Hazardous Materials, 137(1):456–463.
- Meenakshi S. and Viswanathan N. (2007). Identification of selective ion-exchange resin for fluoride sorption. *Journal of Colloid and Interface Science*, 308:438–45.
- Mehrabi N., Soleimani M., Yeganeh M. M. and Sharififard H. (2015). Parameter Optimization for Nitrate Removal from Water Using Activated Carbon and Composite of Activated Carbon and Fe<sub>2</sub>O<sub>3</sub> Nanoparticles. *RSC Advances*, 5:51470–51482.
- Mehta V. S. and Chaudhari S. K. (2015). Arsenic removal from simulated groundwater using household filter columns containing iron filings and sand. *Journal of Water Process Engineering*, 6:151–157.
- Milmile S.N., Pande J.V., Karmakar S., Bansiwal A., Chakrabarti T. and Biniwale R.B.
  (2011). Equilibrium isotherm and kinetic modeling of the adsorption of nitrates
  by anion exchange Indion NSSR resin. *Desalination*, 276(1-3):38-44.
- Mishra P.C. and Patel R.K. (2009). Use of agricultural waste for the removal of nitrate nitrogen from aqueous medium. *Journal of Environmental Management*, 90:519-522.
- Mishra S.P. and Singh V.K. (1998). Ion oxide exchangers in radioactive waste management part X removal of barium ions from aqueous solutions by hydrous bismuth using radiotracer technique and nuclear and radiochemistry laboratory. *Applied Radiation and Isotopes*, 49(1-2):43–48.

- Mizuta K., Matsumoto T., Hatate Y., Nishihara K. and Nakanishi T. (2004). Removal of nitrate-nitrogen from drinking water using bamboo powder charcoal. *Bioresource Technology*, 95:255-257.
- Mjengera H. and Mkongo G. (2003). Appropriate deflouridation technology for use in flourotic areas in Tanzania. *Physics and Chemistry of the Earth*, 28:1097–1104.
- Mohan D. and Pittman J.C. (2007). Arsenic removal from water/wastewater using adsorbents—A critical review. *Journal of Hazardous Materials*, 142:1–53.
- Mohapatra M., Hariprasad D., Mohapatra L., Anand S. and Mishra B. K. (2012). Mgdoped nano ferrihydrite- A new adsorbent for fluoride removal from aqueous solutions. *Applied Surface Science*, 258:4228–4236.
- Mohsenipour M., Shahid S. and Ebrahimi K. (2015). Nitrate Adsorption on Clay Kaolin: Batch Tests. *Journal of Chemistry*, 2015:1-7.
- Mondal P. and Purkait M.K. (2019). Preparation and characterization of novel green synthesized iron–aluminum nanocomposite and studying its efficiency in fluoride removal. *Chemosphere*, 235:391-402.
- Montoya V.H., Ramírez-Montoya L.A., Bonilla-Petriciolet A. and Montes-Morán M.A. (2012). Optimizing the removal of fluoride from water using new carbons obtained by modification of nutshell with a calcium solution from egg shell. *Biochemical Engineering Journal*, 62:1-7.
- Moriwaki H., Kitajima S., Shirai K., Kiguchi K. and Yamada O. (2011). Application of the powder of porous titanium carbide ceramics to a reusable adsorbent for environmental pollutants. *Journal of Hazardous Materials*, 185:725–73.

- Mudhoo A, Sharma S. K., Garg V. K. and Tseng C.H. (2011). Arsenic: An Overview of Applications, Health, and Environmental Concerns and Removal Processes. *Critical Reviews in Environmental Science and Technology*, 41:435–519.
- Mudzielwana R., Gitari M. W., Akinyemi S.A. and Msagati T. A. M. (2017). Synthesis and physicochemical characterization of MnO<sub>2</sub> coated Na-bentonite for groundwater defluoridation: Adsorption modelling and mechanistic aspect. *Applied Surface Science*, 422:745–753.
- Mukherjee A., Sengupta M.K., Hossain M.A., Ahamed S., Das B., Nayak B., Lodh D.,
  Rahman M.M. and Chakraborti D. (2006). Arsenic contamination in groundwater: A global perspective with emphasis on the Asian scenario. *Journal of Health, Population and Nutrition*, 24(2):142-163.
- Mukhopadhyay K., Ghosh A., Das S. K., Show B., Sasikumar P. and Ghosh U. C. (2017). Synthesis and characterization of cerium(IV) incorporated hydrous iron(III) oxide as an adsorbent for fluoride removal from water. *RSC Advances*, 7:26037–26051.
- Namasivayam C. and Senthilkumar S. (1998). Removal of Arsenic (V) from Aqueous Solution Using Industrial Solid Waste: Adsorption Rates and Equilibrium Studies. *Industrial & Engineering Chemistry Research*, 37(12):4816–4822.
- Namasivayam and Höll W.H. (2005). Quaternized biomass as an anion exchanger for the removal of nitrate and other anions from water. *Journal of Chemical Technology and Biotechnology*, 80:164-168.

- Naushad M., Khan M. A., ALOthman Z. A. and Khan M. R. (2014). Adsorptive removal of nitrate from synthetic and commercially available bottled water samples using De-Acidite FF-IP resin. *Journal of Industrial and Engineering Chemistry*, 20(5):3400–3407.
- Negi A.S. and Anand S.C. (1985). A Textbook of Physical Chemistry, New Age International, New Delhi, India.
- Ngai T.K.K. (2002). Arsenic Speciation and Evaluation of an Adsorption Media in Rupandehi and Nawalparasi Districts of Nepal, M.Tech Thesis. Massachusetts Institute of Technology, USA.
- Ngai T.K.K., Murcott S., Shrestha R.R., Dangol B. and Maharjan M. (2006). Development and dissemination of Kanchan Arsenic Filter in rural Nepal. *Water Science and Technology: Water Supply*, 6(3):137-146.
- Ngameni E., Tchomgui-Kamga E. and Darchen A. (2010). Evaluation of removal efficiency of fluoride from aqueous solution using new charcoals that contain calcium compounds. *Journal of Colloid and Interface Science*, 346(2):494-9.
- Nicolli H.B., Suriano J.M., Gomez P. (1989). Ground water contamination with arsenic and other trace elements in an area of the Pampa, Province of Cordoba, Argentina. *Environmental Geology and Water Sciences*, 14:3–16.
- Ogata F, Nagai N, Nagahashi E, Kadowaki N, Saenjum C, Nakamura T and Kawasaki N. (2020). Removal of fluoride using magnesium and iron complex hydroxides. *Water Supply*, 20(7):2815–2825.

- Ohe K., Nagae Y., Nakamura S. and Baba Y. (2003). Removal of nitrate anion by carbonaceous materials prepared from bamboo and coconut shell. *Journal of Chemical Engineering of Japan*, 36:511-515.
- Onyango M.S., Kojima Y., Kuchar D., Osembo S.O. and Matsuda H. (2005). Diffusion kinetic modeling of fluoride removal from aqueous solution by charge-reversed zeolite particles. *Journal of Chemical Engineering of Japan*. 38(9):701-710.
- Onyango M.S., Kojima Y., Kumar A. Kuchar D., Kubota M. and Matsuda H. (2006) Uptake of fluoride by Al<sup>3+</sup> pretreated low-silica synthetic zeolites: Adsorption equilibrium and rate studies. *Separation and Purification Technology*. 41(4):683-704.
- Orlando U.S., Baes A.U., Nishijima W. and Okada M. (2002). A new procedure to produce lignocellulosic anion exchangers from agricultural waste materials. *Bioresource Technology*, 83:195-198.
- Özcan A., Şahin M. and Özcan A.S. (2005). Adsorption of nitrate ions onto sepiolite and surfactant-modified sepiolite. *Adsorption Science & Technology*, 23:323-333.
- Öztürk N. and Bektas T. E. (2004). Nitrate removal from aqueous solution by adsorption onto various materials. *Journal of Hazardous Materials*, B112: 155–162.
- Pantić K., Bajić Z. J., Veličković Z. S., Nešić J. Z., Đolić M. B., Tomić N. Z. and Marinković A. D. (2019). Arsenic removal by copper-impregnated natural

mineral tufa part II: a kinetics and column adsorption study. *Environmental Science and Pollution Research*, 26:24143–24161.

- Parashar K., Ballav N., Debnath S., Pillay K. and Maity A. (2016). Rapid and efficient removal of fluoride ions from aqueous solution using a polypyrrole coated hydrous tin oxide nanocomposite. *Journal of Colloid and Interface Science*, 476:103–118.
- Park J.Y., Byun H.J., Choi W.H. and Kang W.H. (2008). Cement paste column for simultaneous removal of fluoride, phosphate, and nitrate in acidic wastewater. *Chemosphere*, 70:1429–1437.
- Patel R. K., Kumar S., Chawla A. K., Mondal P., Singh N., Teychene B. and Pandey J.
  K. (2019). Elimination of Fluoride, Arsenic, and Nitrate from Water through Adsorption onto Nano-adsorbent: A Review. *Current Nanoscience*, 15:1-19.
- Patra A.K., Dutta A. and Bhaumik A. (2012). Self-assembled mesoporous γ-Al<sub>2</sub>O<sub>3</sub> spherical nanoparticles and their efficiency for the removal of arsenic from water. *Journal of Hazardous Materials*, 201–202:170–177.
- Pauling L. (1960). The nature of the chemical bond and the structure of molecules and crystals, 3rd edition. Cornell University Press, New York.
- Pendergast M.M. and Hoek E.M. (2011). A review of water treatment membrane nanotechnologies. *Energy & Environmental Science*. 4(6):1946-1971.
- Pérez J., Toledo L., Campos C. H., Rivas B. L., Yañez J. and Urbano B. F. (2016) Organic–inorganic interpenetrated hybrids based on cationic polymer and

hydrous zirconium oxide for arsenate and arsenite removal. *Chemical Engineering Journal*, 287:744–754.

- Pessoa Lopes M., Galinha C. F., Crespo J. G. and Velizarov S. (2020). Optimisation of arsenate removal from water by an integrated ion-exchange membrane process coupled with Fe co-precipitation. *Separation and Purification Technology*, 246 :116894.
- Petrusevski B., Slokar Y., Sharma S., Kruis F. and Schippers J.C. (2007). An Innovative Approach for Arsenic Removal. Power-point presentation UNESCO-IHE, <u>http://www.unesco-ihe.org/education</u>.
- Phillips D. H., Gupta B. S., Mukhopadhyay S. and Gupta A.K.S. (2018). Arsenic and fluoride removal from contaminated drinking water with Haix-Fe-Zr and Haix-Zr resin beads. *Journal of Environmental Management*, 215:132-142.
- Piccin J. S., Dotto G. L. and Pinto L. A. A. (2011). Adsorption isotherms and thermochemical data of FD & C RED N° 40 binding by chitosan. *Brazilian Journal of Chemical Engineering*, 28(2):295-304.
- Pietrelli L. (2005). Fluoride wastewater treatment by adsorption onto metallurgical grade alumina. *Analytica Chimica Acta*, 95:303-312.
- Piñón-Miramontes M., Bautista-Margulis R.G., Chihuahua A. and México P.H. (2003). Removal of arsenic and fluoride from drinking water with cake alum and a polymeric anionic flocculent. *Fluoride*, 36(2):122-128.
- Pintar A., Batista J. and Levec J. (2001). Catalytic denitrification: direct and indirect removal of nitrates from potable water. *Catalysis Today*, 66:503–510.

- Pirilä M., Martikainen M., Ainassaari K., Kuokkanen T. and Keiski R. L. (2011). Removal of aqueous As(III) and As(V) by hydrous titanium dioxide. *Journal of Colloid and Interface Science*, 353(1):257–262.
- Pourbaix M. (1996). Atlas of electrochemical equilibrium in aqueous solutions. Pergamon press, Oxford.
- Prabhakar R. and Samadder S. R. (2020). Use of adsorption-influencing parameters for designing the batch adsorber and neural network–based prediction modelling for the aqueous arsenate removal using combustion synthesized nano-alumina. *Environmental Science and Pollution Research*, 27:26367–26384.
- Prathna T.C., Sharma S. K. and Kennedy M. (2017). Development of iron oxide nanoparticle adsorbents for arsenic and fluoride removal. *Desalination and Water Treatment*, 67:187–195.
- Prathna T.C., Sitompul D. N., Sharma S. K. and Kennedy M. (2018). Synthesis, characterization and performance of iron oxide/alumina-based nanoadsorbents for simultaneous arsenic and fluoride removal. *Desalination and Water Treatment*, 104 :121–134.
- Puri B.K. and Balani S. (2000). Trace determination of fluoride using lanthanum hydroxide supported on alumina. *Journal of Environmental Science and Health, Part A, Toxic/Hazardous Substances and Environmental Engineering*, 35:109–21.
- Qiu H., Lv L., Pan B., Zhang Q., Zhang W. and Zhang Q. (2009). Critical review in adsorption kinetic models. *Journal of Zhejiang University, Science*, 1862-1775 A(5):716-724.

- EC (2015). Quality of water intended for human consumption Drinking Water Directive, European Commission, Directory of European Union consolidated legislation, Belgium.
- Rahman M. T., Kameda T., Kumagai S. and Yoshioka T. (2016). Adsorption isotherms and kinetics of arsenic removal from aqueous solution by Mg–Al layered double hydroxide intercalated with nitrate ions. *Reaction Kinetics, Mechanisms and Catalysis*, 120(2):703–714.
- Ramanaiah S.V., Venkatamohan S., Rajkumar B. and Sarma P.N. (2006). Monitoring of fluoride concentration in groundwater of Prakasham district in India: correlation with physico-chemical parameters. *Journal of Environmental Science and Engineering*, 48:129–34.
- Ramli I., Tze C. M. and Hin T. Y. (2007). Effect of sodium hydroxide concentration on the physic chemical characteristic of α-Bi<sub>2</sub>O<sub>3</sub> nanocrystals. *Solid State Science* and Technology, 15(1):30-42.
- Randtke S.J. (1988). Organic contaminant removal by coagulation and related process combinations. *Journal American Water Works Association*. 80:40-56.
- Ranjan M., Srivastav A.L. and Shaktibala. (2015). Effects of addition of cationic ligands in hydrous bismuth oxide on removal of fluoride from aqueous solutions. *Current Science*, 108:9–10.
- Ranjan M., Singh P. K., Srivastav A. L. and Kumar V. (2019). Adsorptive Properties of cation Added Hydrous Bismuth Oxide on Nitrate Sorption. *Journal of Water Chemistry and Technology*, 41(5):283–291.

- Ranjan M., Singh P. K., Srivastav A. L. (2020). A review of bismuth-based sorptive materials for the removal of major contaminants from drinking water. *Environmental Science and Pollution Research*, 27(15):17492–17504.
- Ranjan M., P Singh P. K. (2021). Removal of arsenic from aqueous solution using hydrous bismuth oxide. *Nature environment and pollution technology*, 20(1):133-145.
- Rao P. R., Ngullie N., Golder A. K. and Ghosh P. K. (2015). Arsenic Removal from Contaminated Water by Various Physicochemical Processes. *International Journal of Environmental Science and Development*, 6(5):357-362.
- Rathore V. K., Dohare D. K. and Mondal P. (2016). Competitive adsorption between arsenic and fluoride from binary mixture on chemically treated laterite. *Journal of Environmental Chemical Engineering*, 4:2417–2430.
- Razo L.M.D., Arellano M.A. and Cebrian M.E. (1990). The oxidation states of arsenic in well-water from a chronic arsenicism area of Northern Mexico. *Environmental Pollution*, 64:143–153.
- Reda A.T., Pan M., Zhang D. and Xu X (2021). Bismuth based materials for iodine capture and storage: A review. Journal of environmental chemical engineering, 105279(9):1-14
- Ren Z., Zhang G. and Paul Chen J. (2011). Adsorptive removal of arsenic from water by an iron–zirconium binary oxide adsorbent. *Journal of Colloid and Interface Science*, 358(1):230–237.

- Reynolds T.D. and Richards P.A. (1996). Unit Operation and Processes in Environmental Engineering, 2<sup>nd</sup> Edn, PWS Publishers, Boston, MA, USA.
- Rezaee A., Godini H., Dehestani S. and Khavanin A. (2008). Application of impregnated almond shell activated carbon by zinc and zinc sulfate for nitrate removal from water. *Iranian journal of environmental health science and engineering*, 5:125-130.
- Rubel, J. F. (1983). The removal of excess fluoride from drinking water bythe activated alumina method. In: J. F. Shupe, H. P. Leone & N. C. Leone (eds). The Removal Paragon Press, Salt Lake City, pp. 345–349.
- Ruixia L., Jinlong G. and Hongxiao T. (2002). Adsorption of Fluoride, Phosphate, and Arsenate Ions on a New Type of Ion Exchange Fiber. *Journal of Colloid and Interface Science*, 248:268–274.
- Safarzadeh-Amiri A., Fowlie P., Kazi A.I., Siraj S., Ahmed S. and Akbor A. (2011). Validation of analysis of arsenic in water samples using Wagtech Digital Arsenator. *Science of the Total Environment*, 409(13):2662–2667.
- Saha I., Kanrar S., Gupta K., Show B., Nandi D., Biswas K., Manna B., Chatterjee D. and Ghosh U. C. (2016). Tuned synthesis and characterizational insight into bcyclodextrin amended hydrous iron-zirconium hybrid oxide: A promising scavenger of fluoride in aqueous solution. *RSC Advance*, 6(96):93842–93854.
- Sahli M.A.M., Tahaikt M., Achary I., Taky M., Elhanouni F., Hafasi M., Elmghari M. and Elmidaoui A. (2006). Electro-Dialysis process for nitrate removal using

pilot plant study, development and optimization of techniques. *Desalination*, 189:200.

- Sairam S.C., Viswanathan N. and Meenakshi S. (2008). Defluoridation chemistry of synthetic hydroxyapatite at nano scale: equilibrium and kinetic studies. *Journal of Hazardous Materials*, 155:206–215.
- Sall M. and Vanclooster M. (2009). Assessing the well water pollution problem by nitrates in the small scale farming systems of the Niayes region, Senegal. *Agricultural Water Management*, 96:1360–1368.
- Samatya S., Kabay N., Yuksel U., Arda M. and Yuksel M. (2006). Removal of nitrate from aqueous solution by nitrate selective ion exchange resins. *Reactive & functional polymers*, 66:1206–1214.
- Sancha A.M. and Castro M.L. (2001). Arsenic in Latin America: occurrence, exposure, health effects and remediation, in Arsenic: Exposure and Health Effects IV, In: Chapell, W.R., Abernathy, C.O., Calderon, R.L. (Eds.), Elsevier, Amsterdam, pp. 87–96.
- Sarkar S., Blaney L.M., Gupta A., Ghosh D. and Sen Gupta A.K. (2008). Arsenic removal from groundwater and its safe containment in a rural environment: validation of a sustainable approach. *Environmental Science and Technology*, 42(12):4268–4273.
- Sarkar A. and Paul B. (2016). The global menace of arsenic and its conventional remediation A critical review. *Chemosphere*, 158:37-49.

- Schoeman J.J. and Steyn A. (2003). Nitrate removal with reverse osmosis in a rural area in South Africa. *Desalination*, 155(1):15-26.
- Sen Gupta S. and Bhattacharyya K.G. (2011). Kinetics of adsorption of metal ions on inorganic materials: A review. Advances in Colloid and Interface Science, 162:39–58.
- Shakya A. K. and Ghosh P. K. (2018). Simultaneous removal of arsenic, iron and nitrate in an attached growth bioreactor to meet drinking water standards: Importance of sulphate and empty bed contact time. *Journal of Cleaner Production*, 186:1011–1020.
- Shakya A.K. and Ghosh P.K. (2018). Simultaneous removal of arsenic and nitrate in absence of iron in an attached growth bioreactor to meet drinking water standards: Importance of sulphate and empty bed contact time. *Journal of Cleaner Production*, 186:304–312.
- Sharma Y.C., Uma and Upadhyay S.N. (2009). Removal of a Cationic Dye from Wastewaters by Adsorption on Activated Carbon Developed from Coconut Coir. *Energy & Fuels*, 23:2983–2988.
- Shimelis B., Zewge F. and Chandravanshi B.S. (2006). Removal of excess fluoride from water by aluminum hydroxide. *Bulletin of the Chemical Society of Ethiopia*, 20:17–34.
- Shipley H. J., Yean S., Kan A. T. and Tomson M. B. (2009). A sorption kinetics model for arsenic adsorption to magnetite nanoparticles. *Environmental Science and Pollution Research*, 17(5):1053–1062.

- Shrestha R.R., Shrestha M.P., Upadhay N.P., Pradhan R. and Khadka R.A. (2003). Arsenic: Exposure and Health Effects, In: W.R.Cambell, C.O.Abernathy, R.L. Cal-deron, (Eds.), Elsevier, Amsterdam, pp. 25–37.
- Shrimali M. and Singh K. P. (2001). New methods of nitrate removal from water. Journal of Environmental pollution, 112:351-359.
- Sidwick N.V. (1950). The chemical elements and their compounds. Vol(I), Oxford at the Clarenden Press, UK.
- Singh P. K. (1999). Nitrate removal from water by bismuth based media, Ph.D Thesis. Indian Institute of Technology, Kanpur, India.
- Singh P.K. and Ghosh D.K. (2000). Nitrate removal from water by bismuth based media, In: B.B. Jana, R.D. Banerjee, B. Guterstam, J. Heeb (eds) Waste recycling and resource management in the developing world. University of Kalyani, India and International Ecological Engineering Society, Switzerland, pp:456–459.
- Singh N., Sarkar A. K., Ramchandran R. and Lal K. (2003). Determination of arsenic in fly ash and sulphide ore by flame atomic absorption spectrometry using hydride generator. *Asian Journal of Chemistry*, 15:1327-1330.
- Singh B. and Singh Y. (2004). Balanced fertilization for environmental quality. *Fertilizer News*, 49:107–108,111–113.
- Singh T. S. and Pant K. (2004). Equilibrium, kinetics and thermodynamic studies for adsorption of As(III) on activated alumina. *Separation and Purification Technology*, 36(2):139–147.

- Singh P.K., Srivastav A.L., Ghosh D.K. and Sharma Y.C. (2012). Preparation and properties of hydrous bismuth oxides for nitrate removal from aqueous solutions. *Desalination and Water Treatment*, 40(1-3):144–152.
- Singh P.K., Banerjee S., Srivastava A. L. and Sharma Y.C. (2015). Kinetic and equilibrium modeling for removal of nitrate from aqueous solutions and drinking water by a potential adsorbent, hydrous bismuth oxide. *RSC Advances*, 5:35365–35376.
- Socías-Viciana M. M., Urena-Amate M. D., González-Pradas E., García-Cortés M. J. and López-Teruel C., (2008). Nitrate removal by calcined hydrotalcite-type solution using powder activated carbon and carbon nanotubes. *Clay Clay Miner*, 56:2-9.
- Srivastava D. and Vaishya R. C. (2013). Treatment of arsenic (III) contaminated water by dynamically modified iron-coated sand (DMICS). *Desalination and Water Treatment*, 53(9):2365-2377.
- Srivastav A.L., Singh P.K., Srivastava V. and Sharma Y.C. (2013). Application of a new adsorbent for fluoride removal from aqueous solutions. *Journal* of Hazardous Materials, 263:342–352.
- Srivastav A.L., Singh P.K., Weng C.H. and Sharma Y.C. (2014). Novel adsorbent hydrous bismuth oxide for the removal of nitrate from aqueous solutions. *Journal of Hazardous, Toxic, and Radioactive Waste*, 19(2):04014028:1-8.
- Srivastav A.L., Singh P.K. and Sharma Y.C. (2015). Synthesis of a novel adsorbent, hydrous bismuth oxide (HBO2) for the removal of fluoride from aqueous solutions. *Desalination and Water Treatment*, 55:604–614.

- Srivastava S. K., Senapati S., Singh S.B. and Raul P. K. (2016). Magnetic Ni/PPy nanocomposite as effective reusable adsorbent for removal of arsenite and fluoride from contaminated water. *RSC Advance*, 6:113424–113431.
- Srivastava A. and Singh P. K. (2017). Adsorption of Nitrate from Ground Water using Indian Bentonite: Fixed Bed Column Study. *International journal of engineering research & technology*, 6(5):390-394.
- Srivastav A. L., Ranjan M. (2020). "Inorganic water pollutants", Inorganic pollutants in water. <u>https://doi.org/10.1016/B978-0-12-818965-8.00001-9</u>.
- Stephenson R.J. and Duff S.J. (1996). Coagulation and precipitation of a mechanical pulping effluent—I. Removal of carbon, colour and turbidity. *Water Research*. 30(4): 781-792.
- Streat M., Hellgardt K. and Newton N.L.R. (2008). Hydrous ferric oxide as an adsorbent in water treatment Part 3, Batch and mini-column adsorption of arsenic, phosphorus, fluorine and cadmium ions. *Process Safety* and Environmental Protection, 86:21–30.
- Sujana M. G., Thakur R. S. and Rao S. B. (1998). Removal of fluoride from aqueous solution by using alum sludge. *Journal of Colloid and Interface Science*, 206:94-101.
- Sujana M. G., Soma G., Vasumathi N. and Anand S. (2009). Studies on fluoride adsorption capacities of amorphous Fe/Al mixed hydroxides from aqueous solutions. *Journal of Fluorine Chemistry*, 130:749–754.

- Sujana M G. and Anand S. (2010). Iron and aluminium based mixed hydroxides: A novel sorbent for fluoride removal from aqueous solutions. *Applied Surface Science*, 256:6956–6962.
- Sujana M.G. and Mohanty S. (2010). Characterization and fluoride uptake studies of nano-scale iron oxide-hydroxide synthesized by microemulsion method. *International Journal of Engineering, Science and Technology*, 2(8):1-12.
- Sujana M.G. and Anand S. (2011). Fluoride removal studies from contaminated ground water by using bauxite. *Desalination*, 267:222–227.
- Suzuki T. M., Tanco M. L., Pacheco Tanaka D. A., Matsunaga H. and Yokoyama, T. (2001). Adsorption characteristics and removal of oxo-anions of arsenic and selenium on the porous polymers loaded with monoclinic hydrous zirconium oxide. *Separation Science and Technology*, 36(1):103–111.
- Swain S.K., Mishra S., Patnaik T., Patel R.K., Jha U. and Dey R.K. (2012). Fluoride removal performance of a new hybrid sorbent of Zr(IV)–ethylenediamine. *Chemical Engineering Journal*, 184:72–81.
- Tahir, M.A. and Rasheed, H. (2008). Distribution of nitrate in the water resources of Pakistan. African Journal of Environmental Science and Technology, 2:397– 403.
- Tan I.A.W., Ahmad A.L. and Hameed B.H. (2008). Adsorption of basic dye on highsurface-area activated carbon prepared from coconut husk: Equilibrium, kinetic and thermodynamic studies. *Journal of Hazardous Materials*, 154(1-3):337-346.

- Tang Q., Duan T., Li P., Zhang P. and Wu D. (2018). Enhanced Defluoridation Capacity from Aqueous Media via Hydroxyapatite Decorated with Carbon Nanotube. *Frontiers in Chemistry*, 6:104.
- Teimouri A., Nasab S. G., Vahdatpoor N., Habibollahi S., Salavati H. and Chermahini
  A. N. (2016). Chitosan /Zeolite Y/Nano ZrO<sub>2</sub> nanocomposite as an adsorbent
  for the removal of nitrate from the aqueous solution. *International Journal of Biological Macromolecules*, 93:254–266.
- Teng S. X., Wang S., Gong W., Liu X. and Gao B. (2009). Removal of fluoride by hydrous manganese oxide-coated alumina: Performance and mechanism. *Journal of Hazardous Materials*, 168:1004–1011.
- Thirunavukkarasu O.S., Viraraghavan T., Subramanian K.S. and Tanjore S. (2002). Organic arsenic removal from drinking water. *Urban Water*, 4(4):415-421.
- Thomas H.C. (1944). Heterogenous ion exchange in a flowing system. *Journal of the American chemical society*, 66:1664-1666.
- Tomar V., Prasad S. and Kumar D. (2013). Adsorptive removal of fluoride from water samples using Zr–Mn composite material. *Microchemical Journal*, 111:116– 124.
- Tomar G., Thareja A. and Sarkar S. (2015). Enhanced fluoride removal by hydroxyapatite-modified activated alumina. *International Journal of Environmental Science and Technology*, 12(9):2809–2818.
- Trgo M., Melvidovic N.V. and Peric J. (2010). Application of mathematical empirical models to dynamic removal of lead on natural zeolite clinoptilolite in a fix bed column. *Indian journal of chemical technology*.18:121-123.

- Tripathy S.S., Bersillon J.L. and Gopal K. (2006). Removal of fluoride from drinking water by adsorption onto alum-impregnated activated alumina. *Separation* and Purification Technology, 50:310-317.
- Tripathy S.S. and Raichur A.M. (2008). Abatement of fluoride from water using manganese dioxide-coated activated alumina. *Journal of Hazardous Materials*, 153:1043–51.
- PHR (2015). Public Health Reports, U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries, U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation, 130(4):318–331.
- Udalova T.A., Logutenko O.A., Timakova E.V., Afonina L.I., Naydenko E.S. and Yukhin Y.M. (2008). Bismuth compounds in medicine, Third International Forum on Strategic Technologies. <u>doi:10.1109/ifost.2008.4602849.</u>
- UNESCO (2003). Water for people water for life. The United Nations World Water Development Report, United Nations Educational, Scientific and Cultural Organization and Berghahn Books.
- USEPA (1993). Consumer factsheet on: Nitrate/Nitrites. United states Environmental Protection Agency. Washington D.C., USA.
- USEPA (1997). Public health global for fluoride in drinking water. United states Environmental Protection Agency. Washington D.C., USA.
- USEPA (2000). 'Proposed Guidance on Cumulative Risk Assessment of Pesticide Chemicals that Have a Common Mechanism of Toxicity', Public Comment Draft. United states Environmental Protection Agency. Washington D.C., USA.

- USEPA (2003). National Primary Drinking Water Regulations. Office of ground Water and Drinking Water, United States Environmental Protection Agency, Washington D.C., USA.
- USEPA (2018). Drinking Water Standards and Health Advisories. United States Environmental Protection Agency, Washington D.C., USA.
- Uzun I. and Güzel F. (2005). Rate studies on the adsorption of some dyestuffes and pnitrophenol by chitosan and monocarboxymethylate (mcm)- chitosan from aqueous solution. *Journal of Hazardous Materials*, B118:141-154.
- Vaclavikova M., Gallios G.P., Hredzak S. and Jakabsky S. (2008). Removal of arsenic from water streams: an overview of available techniques. *Clean Technologies* and Environmental Policy, 10(1):89–95.
- Vaishya R. C. and Gupta S. K. (2005). Modeling Arsenic(V) removal from Water by Sulfate Modified Iron-Oxide Coated Sand (SMIOCS). Separation Science and Technology, 39(3):645–666.
- Vaishya R.C. and Gupta S.K. (2015). Modeling arsenic(V) removal from water by sulfate modified iron oxide coated sand (SMIOCS). *Journal of Chemical Technology & Biotechnology*, 78:73–80.
- Villa I.G., Lanchez S.C., Chavez M.R.C., Davila J.P.M. and Vazquez A.P. (2010).
  Agricultural Contamination of Subterranean Water with Nitrates and Nitrites:
  An Environmental and Public Health Problem. *Journal of Agricultural Science*, 2(2):17.

- Volk M., Liersch S. and Schmidt G. (2009). Towards the implementation of the European water framework directive, Lessons learned from water quality simulations in an agricultural watershed. *Land Use Policy*, 26(3):580–588.
- Walker G.M. and Weatherley L.R. (2001). Adsorption of Dyes from Aqueous Solution—The Effect of Adsorbent Pore Size Distribution and Dye Aggregation. *Chemical Engineering Journal*, 83(3):201-206.
- Wang L.F.M. and Huang J.Z. (1995). Outline of control practice of endemic fluorosis in China. Social Science & Medicine, 41:1191–1195.
- Wang Y., Gao B.Y., Yue W.W. and Yue Q.Y. (2007). Adsorption kinetics of nitrate from aqueous solutions onto modified wheat residue. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 308:1-5.
- Ward M. H., Jones R. R., Brender J. D., de Kok T. M., Weyer P. J., Nolan B. T., Villanueva C. M., van Breda S. G., (2018). Drinking Water Nitrate and Human Health: An Updated Review. International Journal of Environmental Research and Public Health, 15(1557):1-31.
- Weber Jr W.J. and Morris J.C. (1963). Kinetics of adsorption on carbon from solution. Journal of the Sanitary Engineering Division, 89:31–59.
- WHO (1993). Guidelines for Drinking Water Quality. Recommendations, 2<sup>nd</sup> Edition,
   World Health Organization, Geneva, Switzerland.
- WHO (2002). Guidelines for Drinking Water Quality. 2<sup>nd</sup> Edition, World Health Organization, Geneva, Switzerland.

- WHO (2006). Guidelines for Drinking-water Quality, 4<sup>th</sup> edition, World Health Organization. Geneva, Switzerland.
- WHO (2007). Nitrate and Nitrite in Drinking-water. "Background Document for Development of World Health Organization, Guidelines for Drinking-water Quality", World Health Organization, Geneva, Switzerland.
- WHO (2008). Guidelines for Drinking-water Quality, 4<sup>th</sup> Edition, World Health Organization, Geneva, Switzerland.
- WHO (2012). Guidelines for Drinking-water Quality, World Health Organization, Geneva, Switzerland.
- WHO (2017). Guidelines for drinking-water quality: fourth edition incorporating the first addendum. World Health Organization. Geneva, Switzerland.
- WHO/UNICEF (2021). Joint Monitoring Program for Water Supply, Sanitation and Hygiene (JMP) – Progress on household drinking water, sanitation and hygiene 2000 – 2020. World Health Organization, Geneva, Switzerland.
- Wickramasinghe S. R., Han B. B., Zimbron J., Shen Z. and Karim M. N. (2004). Arsenic removal by coagulation and filtration: Comparison of ground waters from the United States and Bangladesh. *Desalination*, 169: 231-244.
- Williams M., Fordyce F., Paijiiprapapon A. and Charoenchaisri P. (1996). Arsenic contamination in surface drainage and ground water in part of the south east Asian tin belt, Nakhon Si Thammarat Province, southern Thailand. *Environmental Geology*, 27:16–33.

- Xi Y., Mallavarapu M. and Naidu R. (2010). Preparation, characterization of surfactants modified clay minerals and nitrate adsorption. *Applied Clay Science*, 48:92-96.
- Xie Z., Wang J., Wei X., Li F., Chen M., Wang J. and Gao B. (2018). Interactions between arsenic adsorption/desorption and indigenous bacterial activity in shallow high arsenic aquifer sediments from the Jianghan Plain, Central China. *Science of the Total Environment*. 644:382-388.
- Yan G., Viraraghavan T. and Chen M. (2001). A New Model for Heavy Metal Removal in a Biosorption Column. *Adsorption Science & Technology*, 19(1):25-43.
- Yan L., Huang Y., Cui J. and Jing C. (2015). Simultaneous As(III) and Cd removal from copper smelting wastewater using granular TiO<sub>2</sub> columns. *Water Research*, 68:572–579.
- Yan L., Tu H., Chan T. and Jing C. (2017). Mechanistic study of simultaneous arsenic and fluoride removal using granular TiO<sub>2</sub>-La adsorbent. *Chemical Engineering Journal*, 313:983–992.
- Yoon Y.N. and Nelson J.H. (1984). Application of gas adsorption kinetics I.A theoretical model for respirator cartridge service life. *American Industrial Hygiene Association Journal*, 45:509-516.
- Yoon Y., Park W. K., Hwang T.-M., Yoon D. H., Yang W. S., Kang J.-W. (2016). Comparative evaluation of magnetite–graphene oxide and magnetite-reduced graphene oxide composite for As(III) and As(V) removal. *Journal of Hazardous Materials*, 304:196–204.

- Zawani Z., Luqman C. A. and Thomas S.Y.C. (2009). Equilibrium, Kinetics and Thermodynamic Studies: Adsorption of Remazol Black 5 on the Palm Kernel Shell Activated Carbon. *European Journal of Scientific Research*, 37(1):63-71.
- Zeng L. (2004). Arsenic Adsorption from Aqueous Solutions on an Fe(III)-Si Binary Oxide Adsorbent. Water Quality Research Journal, 39(3):267–275.
- Zhang Y., Yang M. and Huang X. (2003). Arsenic(V) removal with a Ce(IV)-doped iron oxide adsorbent. *Chemosphere*, 51:945–952.
- Zhang Y., Doua X. M., Yang M., He H., Jing C.Y. and Wu Z.Y. (2010). Removal of arsenate from water by using and Fe–Ce oxide adsorbent, Effects of coexistent fluoride and phosphate. *Journal of Hazardous Materials*, 179:208–214.
- Zhang G., Liu H., Qu J. and Jefferson W. (2012). Arsenate uptake and arsenite simultaneous sorption and oxidation by Fe–Mn binary oxides: Influence of Mn/Fe ratio, pH, Ca<sup>2+</sup>, and humic acid. *Journal of Colloid and Interface Science*, 366(1): 141–146.
- Zhang G., Ren Z., Zhang X. and Chen J. (2013). Nanostructured iron(III)-copper(II) binary oxide: a novel adsorbent for enhanced arsenic removal from aqueous solutions. *Water Research*, 47:4022–4031.
- Zhang S., Lu Y., Lin X., Su X. and Zhang Y. (2014) Removal of fluoride from groundwater by adsorption onto La(III)-Al(III) loaded scoria adsorbent. *Applied Surface Science*, 303:1–5.
- Zhang T., Yue X., Gao L., Qiu F., Xu J., Rong J. and Pan J. (2017). Hierarchically porous bismuth oxide/layered double hydroxide composites: preparation. characterization and iodine adsorption, *Journal of Cleaner Production*, 144220–227.

- Zhang W., Liu C., Wang L., Zheng T., Ren G., Li J., Ma J., Zhang G., Song H., Zhang
  Z. and Li Z. (2019). A novel nanostructured Fe-Ti-Mn composite oxide for
  highly efficient arsenic removal: Preparation and performance evaluation. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 561:364-372.
- Zhao B., Zhang Y., Dou X., Wu X., Yang M. (2012). Granulation of Fe–Al–Ce trimetal hydroxide as a fluoride adsorbent using the extrusion method. *Chemical Engineering Journal*, 185–186:211–218.
- Zhou H., Tan Y., Gao W., Zhang Y. and Yang Y. (2020). Selective nitrate removal from aqueous solutions by a hydrotalcite-like absorbent FeMgMn-LDH. *Scientific Reports*, 10(1):16126.
- Zhu N., Qiao J., Ye Y. and Yan T. (2018). Synthesis of mesoporous bismuth impregnated aluminum oxide for arsenic removal: Adsorption mechanism study and application to a lab-scale column. *Journal of Environmental Management*, 211:73–82.

## LIST OF PUBLICATIONS

## JOURNALS (03)

- Ranjan M., Singh P. K., Srivastav A. L., Kumar V. (2019). Adsorptive properties of cation added Hydrous Bismuth Oxide with respect to nitrate sorption. Water chemistry and technology. *Journal of Water Chemistry and Technology*, 415(5):283–291.
- Ranjan M., Singh P. K., Srivastav A. L. (2020). A review of bismuth-based sorptive materials for the removal of major contaminants from drinking water. *Environmental Science and Pollution Research*, 27(15):17492–17504.
- Ranjan M., Singh P. K. (2020). Concurrent removal of nitrate, fluoride and arsenic from water by hydrous bismuth oxide. *Journal of Water Supply: Research* and Technology – AQUA, 69(5):478-499.

## **INTERNATIONAL CONFERENCES (02)**

- Ranjan M., Singh P. K., Kumar V., "Abatement of Nitrate by Bismuth Based Inorganic Media", in international Conference on 'Urbanization Challenges in Emerging Economies', ASCE India conference 2017, New Delhi, India.
- Shaktibaba, Jahangeer, Ranjan M. "Assessment of physciochemical properties of budhigandak in the muzaffarpur district Bihar", in 'Hydro 2016 International conference', Pune, India.

## **BOOK CHAPTER (01)**

Srivastav A. L., Ranjan M. (2020). "Inorganic water pollutants", Inorganic pollutants in water. <u>https://doi.org/10.1016/B978-0-12-818965-8.00001-9</u>.