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Area of Specialization: Cement and Concrete Technology, Soil Chemistry, Gasification and Adsorption and Kinetic Chemistry

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Academic Publications

1. Munyao, O. M., Thiong'o, J. K., **Muthengia, J. W.**, Mutitu, D. K., Mwirichia, R., Muriithi, G. and Marangu, J. M. (2020) Study on the Effect of Thiobacillus intermedius Bacteria on the Physico-Mechanical Properties of Mortars of Ordinary Portland Cement, *Heliyon*, Volume 6, Issue 1, January 2020, e03232 <https://doi.org/10.1016/j.heliyon.2020.e03232>
2. Kugeria, P. M., Mwangi, I. W., **Muthengia, J. W.** and Njoroge, P. W. (2019) Monitoring the Extraction of Copper from Chicken Dung Leachate Using an Aluminium Electrode as Indicator, *Heliyon*, 5 (2019) <https://doi.org/10.1016/j.heliyon.2019.e02921>
3. Mutitu, D. K., **Wachira, J. M.**, Mwirichia, R., Thiong'o, Munyao, O. M. and Muriithi, G. (2019) Influence of Lysinibacillus Sphaericus on Compressive Strength and Water Sorptivity in Microbial Cement Mortar, *Heliyon*, 5 (2019) e02881, <https://doi.org/10.1016/j.heliyon.2019.e02881>
4. Kariuki, S. W., **Wachira, J.**, Kawira, M. and Murithi, G. L. (2019) Characterisation of Prototype Formulated Particleboards from Agroindustrial Lignocellulose Biomass Bonded with Chemically Modified Cassave Peel Starch, *Advances in Materials Science and Engineering*, Volume 2019, Article ID 1615629, 15 pages, <https://doi.org/10.1155/2019/1615629>
5. Kariuki, S. W., **Wachira, J.**, Kawira, M. and Murithi, G. (2019) Formaldehyde Use and Alternative Biobased Binders for Particleboard Formulation: A Review, *Journal of Chemistry*, Volume 2019, Article ID 5256897, 12 pages, <https://doi.org/10.1155/2019/5256897>
6. Nalobile, P., **Wachira, J. M.**, Thiongó J. K. and Marangu, J. M. (2019) Pyroprocessing and the Optimum Mix Ratio of Rice Husks, Brocken and Spent Bleaching Earth to Make Pozzolanic Cement, *Heliyon*, Volume 5, Issue 9, Article e02443, <https://doi.org/10.1016/j.heliyon.2019.e02443>

7. **Wachira, J. M.** and Marangu, J. M. (2019) Chloride Diffusivity in Blended Cement Made from Selected Industrial and Agrowastes Advances in Materials Science and Engineering, Volume 2019, Article ID 2814320, 7 pages, <https://doi.org/10.1155/2019/2814320>
8. **Wachira, J. M.** Thiongó J. K., Marangu, J. M. and Murithi L. G. (2019) Physicochemical Performance of Portland – Rice Husk Ash-Calcined Clay – Dried Acetylene Lime Sludge Cement in Sulphate and Chloride Media, *Advances in Materials Science and Engineering*, Vol. 2019, <https://doi.org/10.1155/2019/5618743>
9. **Wachira, J. M.** (2019) Effects of Chlorides on Corrosion of Simulated Reinforced Blended Cement Mortars, *International Journal of Corrosion*, Vol. 2019, <https://doi.org/10.1155/2019/2123547>
10. Marangu, J. M., Thiongó J. K. and **Muthengia, J. W.** (2019) Review of Carbonation Resistance in Hydrated Cement-Based Materials, *Journal of Chemistry*, Volume 2018, <https://doi.org/10.1155/2018/1595230>
11. Kugeriaa, M. P., Mwangi, I., **Wachira, J. M.**, Njoroge, P. (2019) Copper extraction by wet chemical method. *Journal of Sustainable Mining* Volume 17, Issue 4, 2018, Pages 202-208
12. Marangu, J. M., Thiongó J. K. and **Wachira, J. M.** (2018) Properties of Activated Blended Cement Containing High Content of Calcined Clay, *Heliyon*, Volume 4 Issue 8. <https://doi.org/10.1016/j.heliyon.2018.e00742>
13. Kugeria, P. M., Mwangi, I. **Wachira, J.** and Njoroge, P. (2018) Copper Extraction by Wet Chemical Method, *Journal of Sustainable Mining*, <https://doi.org/10.1016/j.jsm.2018.07.003>
14. Marangu, J. M., Thiongó J. K. and **Wachira, J. M.** (2018) Chloride Ingress in Chemically Activated Calcined Clay-Based Cement, *Journal of Chemistry*, <https://doi.org/10.1155/2019/8489671>
15. Mutitu, D. K., Karanja, J. K. and **Wachira, J. M.** (2014) Diffusivity of Sulphate in Selected Ordinary Portland Cement and Portland Pozzolana Cements, *Journal of the Kenya Chemical Society*, Volume 8 Issue 1, pp 13 - 25
16. **Wachira, J. M.**, Ngari, R. W., Thiongó J. K. and Marangu, J. M. (2019) Effect of Sulphate and Chloride Ingress on Selected Cements Mortar Prisms Immersed in Sea Water and Leather Industry Effluent, *Advances in Civil Engineering*, in the Issue: The Effect of Coastal Environment on the Degradation of Reinforced Concrete Structures, Volume 2019, <https://doi.org/10.1155/2019/8191689>

17. Ngui, F., **Wachira, J. M.**, Marangu, J. M., Thiongó, J. K. and (2019) Performance of Ground Clay Brick Mortars in Simulated Chloride and Sulphate Media, *Journal of Engineering*, Volume 2019, Article ID 6430868, 12 pages <https://doi.org/10.1155/2019/6430868>
18. Mutitu, K. D., Munyao, M. O. **Wachira, J. M.** Mwirichia, R., Thiongó J. K. and Marangu, M. J. (2019) Effects of Biocementation on Some Properties of Cement-Based Materials Incorporating Bacillus Species Bacteria, *Journal of Sustainable Cement-Based Materials*, <https://doi.org/10.1080/21650373.2019.1640141>
19. Mwititi M. J., Karanja T. J., **Muthengia W. J.** (2018) Thermal Resistivity of Chemically Activated Calcined Clays-Based Cements. In: Martirena F., Favier A., Scrivener K. (eds) *Calcined Clays for Sustainable Concrete*. RILEM Bookseries, vol 16. *Springer*, Dordrecht, https://doi.org/10.1007/978-94-024-1207-9_53
20. Mutitu, D. K., Karanja, J. K. and **Wachira, J. M.** Diffusivity of Sulphate in Selected Ordinary Portland Cement and Portland Pozzolana Cements, *Journal of the Kenya Chemical Society*, Volume 8 Issue 1, pp 13 – 25
21. Mbugua, G.W., Mbuvi, H. M. and **Muthengia, J. W.** Ash Derived Zeolite Blended with Water Hyacinth Ash for Enhanced Adsorption of Cadmium Ions, *Current World Environment, International Research Journal of Environmental Science*.
22. Mutitu, D. K., Karanja, J. K. and **Wachira, J. M.** (Mar-April 2014) Diffusivity of Chloride Ion in Mortar Cubes Made Using Ordinary Portland and Portland Pozzolana Cements, *IOSR Journal of Applied Chemistry*, Volume 7, Issue 2 Ver. 1, PP 67-73.
23. Mutembei, P. K., Naftali, T. M. and **Muthengia, J. W.** (March, 2014) Iron Enrichment In Laterites Soils From Selected Regions In Kenya Using Magnetic Separation, *IOSR Journal of Engineering* Vol. 04, Issue 03 pp 42-48.
23. Kenyanya, O., **Muthengia J.** and Harun, M. (2013) Determination of Potassium Levels in Intensive Subsistence Agricultural Soils in Nyamira County, Kenya *International Journal of Agriculture and Forestry* 3 (7):294 - 302.
24. Kenyanya, O., **Muthengia, J. M.** Mbuvi, H. M. and Omayo, E. K. (November 2013) Comparative Studies of four parametric Models for Potassium Adsorption in Soils of Nyamira County, Kenya, *International Journal of Management, IT and Engineering*.
25. Marangu, J. M., **Muthengia, J. W.** and wa-Thiong’o, J. K. (2014) Performance of Potential Pozzolanic Cement in Chloride Media *IOSR Journal of Applied Chemistry IOSR-JAC* Vol 7, Issue 2 Ver. 1, PP 36-44.
26. **Muthengia, J. W.**, Muthakia, GK and wa-Thiong’o JK (2012) Cementing Material from Rice Husk – Broken Bricks – Spent Bleaching Earth – Dried Calcium Carbide Residue, *Mediterranean*

27. **Wachira, J** (2012) Chloride Ingress in Pozzolana Based Cement, 7Th Kenya Chemical Society International Conference, Abstract Book, Held in Maseno University between 15Th – 19Th October, 2012
28. Muriithi NT, **Wachira, JM**, Mutembei, PK, Njoroge, PW, Wanjau RN and Keru, GK, Concentration of Iron in Laterites: Increasing the Availability of Iron to Achieve Vision 2030, 7Th Kenya Chemical Society International Conference, Book of Abstract, Held in Maseno University between 15Th – 19Th October, 2012
29. Muriithi, NT, **Wachira JM** and Keru, GK (2010) Wasted Natural Resources, Case Study of Iron Rich Murram Deposits in Kenya, 1ST East African Regional Scientific Conference, Kenyatta University, Nairobi
30. **Muthengia, JW**, wa-Thiong'o, JK and Muthakia, GK, (2005) Spent Bleaching Earth as a Pozzolanic Material, Journal of Civil Engineering Research and Practice, Vol 2 pp 15 -21
31. **Muthengia, JW**, wa-Thiong'o, JK and Muthakia, GK (2005) Calcium Carbide Residue as Alternative to Calcium Hydroxide for Commercial Building Lime Pozzolana Material, Kenya Chemical Society, 5Th International Conference, August, 22ND – 26TH 2005, pp 209 – 213.

Conferences/Workshops/Seminars Attended and Participated

1. 4th – 7th November, 2014, 1st Dedan Kimathi University of Technology Conference
2. 15Th – 18Th October, 2012, 7Th Kenya Chemical Society International Conference, Held at Maseno University.
3. 28Th April, 2012 – The Kenya Chemical Society Workshop Held at Jomo Kenyatta University of Agriculture and Technology, Nairobi
4. 14Th – 15Th April, 2012 – Research Methodology Workshop of the Association of African Universities (AAU) – EASRN of Tertiary Institution Against The HIV/AIDS Pandemic, Held at Kenyatta University, Nairobi
5. 10Th - 14Th August, 2010 – 1St East African Regional Scientific Conference held at Kenyatta University, Nairobi
6. 25Th April, 2009 - The Kenya Chemical Society Workshop Held at University of Nairobi

Postgraduate Supervision

PhD Supervisions

1. Njoroge Peter Waithaka (Dec, 2014) Chemical Analysis and Concentration of Iron in Laterites in Kamahuha in Murang'a, Kenya
2. Muriithi GL, (Ongoing Ph.D Research) Industrial Waste Water Treatment Using Biomass and Other Potential Adsorbents.
3. Mutembei PK (Ongoing Ph.D. Research)

4. Regina NR (Ongoing Ph.D. Research)

M.Sc. Supervisions

1. Wangui NR (July, 2014) Sulphate and Chloride Ingress and the Effect in Selected Cements Mortar Prisms Immersed in Sea Water and Leather Industry Effluent
2. Mosiori OG (Dec, 2013) Thermo – Chemical Characteristics of Gasifier Fuels
3. Mutembei PK (Dec, 2013) Concentration of Iron in Laterites from Different Localities of Tunyai Division in Tharaka Nithi County in Kenya Using Magnetic Separation
4. Marangu JM (Dec, 2013) Pozzolanicity, Chloride Ingress and Compressive Strength of Laboratory Made Kenya Clay – Portland Cement Blends
5. Kinyua, LJ (July, 2013) Pozzolana Cement Made from and Rice Husks and Clays Calcined in Situ
6. Mutitu D (July, 2013) Diffusivity of Chloride and Sulphate Ions in Selected Ordinary Portland and Portland Pozzolana Cements
7. Keru, GK. (2011) Concentration of Iron in Murram (Laterites) from Ruiru Area in Thika District, Kenya To asses Economic Viability