References

[1] Abdeljawad, T., Thabet, S. T., Kedim, I., Ayari, M. I., and Khan, A. (2023). A higher-order extension of atangana–baleanu fractional operators with respect to another function and a gronwall-type inequality. *Boundary Value Problems*, 2023.

[2] Abidemi, A. (2023). Optimal cost-effective control of drug abuse by students: insight from mathematical modeling. *Modeling Earth Systems and Environment*, 9:811–829.

[3] Addai, E., Zhang, L., Asamoah, J. K. K., and Essel, J. F. (2023). A fractional order age-specific smoke epidemic model. *Applied Mathematical Modelling*, 119:99–118.

[4] Alade, T. O. (2021). On the generalized chikungunya virus dynamics model with distributed time delays. *International Journal of Dynamics and Control*, 9(3):1250–1260.

[5] Albeshan, S. M. and Alashban, Y. I. (2021). Incidence trends of breast cancer in saudi arabia: A joinpoint regression analysis (2004–2016). *Journal of King Saud University - Science*, 33:101578.

[6] Ali, K. K., Abd El Salam, M. A., Mohamed, E. M., Samet, B., Kumar, S., and Osman, M. (2020). Numerical solution for generalized nonlinear fractional integro-differential equations with linear functional arguments using chebyshev series. *Advances in Difference Equations*, 2020(1):1–23.

[7] Almeida, R. and Qureshi, S. (2019). A fractional measles model having monotonic real statistical data for constant transmission rate of the disease. *Fractal and Fractional*, 3(4(53)):1–7.

[8] Alnima, T., Meijer, R. I., Spronk, H. M. H., Warlé, M., and ten Cate, H. (2023). Diabetes- versus smoking-related thrombo-inflammation in peripheral artery disease. *Cardiovascular Diabetology*, 22(257):1–13.

[9] Alzahrani, E., El-Dessoky, M., and Khan, M. A. (2023a). Mathematical model to understand the dynamics of cancer, prevention diagnosis and therapy. *Mathematics*, 11(9):1975.

[10] Alzahrani, E., El-Dessoky, M. M., and Khan, M. A. (2023b). Mathematical model to understand the dynamics of cancer, prevention diagnosis and therapy. *Mathematics*, 11.

[11] Arqub, O. A., Osman, M. S., Park, C., Lee, J. R., Alsulami, H., and Alhodaly, M. (2022a). Development of the reproducing kernel hilbert space algorithm for numerical pointwise solution of the time-fractional nonlocal reaction-diffusion equation. *Alexandria Engineering Journal*, 61:10539–10550.

[12] Arqub, O. A., Tayebi, S., Baleanu, D., Osman, M. S., Mahmoud, W., and Alsulami, H. (2022b). A numerical combined algorithm in cubic b-spline method and finite difference technique for the time-fractional nonlinear diffusion wave equation with reaction and damping terms. *Results in Physics*, 41:105912.

[13] Asamoah, J. K. K., Okyere, E., Yankson, E., Opoku, A. A., Adom-Konadu, A., Acheampong, E., and Arthur, Y. D. (2022). Non-fractional and fractional mathematical analysis and simulations for Q fever. *Chaos, Solitons & Fractals*, 156:111821.

[14] Atangana, A. and Baleanu, D. (2016). New fractional derivatives with nonlocal and non-singular kernel: theory and application to heat transfer model. *arXiv preprint arXiv:1602.03408*. `https://doi.org/10.48550/arXiv.1602.03408`.

[15] Atangana, A. and Owolabi, K. M. (2018a). New numerical approach for fractional differential equations. *Mathematical Modelling of Natural Phenomena*, 13.

[16] Atangana, A. and Owolabi, K. M. (2018b). New numerical approach for fractional differential equations. *Mathematical Modelling of Natural Phenomena*, 13(1):3.

[17] Ayari, M. I. and Thabet, S. T. (2023). Qualitative properties and approximate solutions of thermostat fractional dynamics system via a nonsingular kernel operator. *Arab Journal of Mathematical Sciences*.

[18] Baleanu, D., Jajarmi, A., Mohammadi, H., and Rezapour, S. (2020). A new study on the mathematical modelling of human liver with caputo–fabrizio fractional derivative. *Chaos, Solitons & Fractals*, 134:109705.

[19] Bellomo, N., Outada, N., Soler, J., Tao, Y., and Winkler, M. (2022). Chemotaxis and cross-diffusion models in complex environments: Models and analytic problems toward a multiscale vision. *Mathematical Models and Methods in Applied Sciences*, 32(4):713–792.

[20] Blauth, S., Hübner, F., Leithäuser, C., Siedow, N., and Vogl, T. J. (2022). Mathematical modeling and simulation of laser-induced thermotherapy for the treatment of liver tumors. In *Modeling, Simulation and Optimization in the Health-and Energy-Sector*, pages 3–23. Springer.

[21] Botesteanu, D.-A., Lipkowitz, S., Lee, J.-M., and Levy, D. (2016). Mathematical models of breast and ovarian cancers. *WIREs Systems Biology and Medicine*, 8(4):337–362.

[22] Brauer, F., Castillo-Chavez, C., Feng, Z., et al. (2019). *Mathematical models in epidemiology*, volume 32. Springer.

[23] Brown, R. C. and Hinton, D. B. (2000). *Lyapunov Inequalities and their Applications*, pages 1–25. Springer Netherlands, Dordrecht.

[24] Caputo, M. (1967). Linear Models of Dissipation whose Q is almost Frequency Independent—II. *Geophysical Journal International*, 13(5):529–539.

[25] Caputo, M. and Fabrizio, M. (2015). A new definition of fractional derivative without singular kernel. *Progress in Fractional Differentiation and Applications*, 1(2):73–85.

[26] Chapra, S. C. and Canale, R. P. (2002). *Numerical Methods for Engineers: With Software and Programming Applications*. McGraw-Hill higher education. McGraw-Hill.

[27] Chauhan, J. P. and Khirsariya, S. R. (2023). A semi-analytic method to solve nonlinear differential equations with arbitrary order. *Results in Control and Optimization*, 12:100267.

[28] Chauhan, J. P., Khirsariya, S. R., Hathiwala, G. S., and Hathiwala, M. B. (2023). New analyticat technique to solve fractional-order sharma-tasso-olver differential equation using caputo and atangana - balenu derivative operator. *Journal of Applied Analysis*.

[29] Chu, Y.-M., Khan, M. F., Ullah, S., Shah, S. A. A., Farooq, M., and bin Mamat, M. (2023). Mathematical assessment of a fractional-order vector–host disease model with the caputo–fabrizio derivative. *Mathematical Methods in the Applied Sciences*, 46(1):232–247.

[30] Dave, D. K. and Shah, T. P. (2021). STABILITY ANALYSIS AND Z-CONTROL OF BREAST CANCER DYNAMICS. *Aadvances and Applications in Mathematical Sciences*, 21(1):343–363.

[31] de Lima Cavalcanti, T. Y. V., Pereira, M. R., de Paula, S. O., and Franca, R. F. d. O. (2022). A Review on Chikungunya Virus Epidemiology, Pathogenesis and Current Vaccine Development. *Viruses*, 14,969(5):1–20.

[32] Dey, S. K. and Dey, S. C. (2015). Mathematical modeling of breast cancer treatment. *Springer Proceedings in Mathematics and Statistics*, 146:149–160.

[33] Diethelm, K. (2011). An efficient parallel algorithm for the numerical solution of fractional differential equations. *Fractional Calculus and Applied Analysis*, 14(3):475–490.

[34] Diethelm, K., Ford, N. J., and Freed, A. D. (2002). A Predictor-Corrector Approach Numerical Solution of Fractional for the Differential Equations. *Nonlinear Dynamics*, 29:1–23.

[35] Din, A. and Li, Y. (2021). Lévy noise impact on a stochastic hepatitis b epidemic model under real statistical data and its fractal–fractional atangana–baleanu order model. *Physica Scripta*, 96(12):124008.

[36] Djennadi, S., Shawagfeh, N., Inc, M., Osman, M. S., Gómez-Aguilar, J. F., and Arqub, O. A. (2021). The tikhonov regularization method for the inverse source problem of time fractional heat equation in the view of abc-fractional technique. *Physica Scripta*, 96:94006.

[37] Dokuyucu, M. A., Çelik, E., Bulut, H., and Baskonus, H. M. (2018). Cancer treatment model with the caputo-fabrizio fractional derivative. *The European Physical Journal Plus*, 133:1–6.

[38] Duan, J.-S., Wang, Z., Liu, Y.-L., and Qiu, X. (2013). Eigenvalue problems for fractional ordinary differential equations. *Chaos, Solitons & Fractals*, 46:46–53.

[39] El-Dessoky, M. and Khan, M. A. (2021). Application of caputo-fabrizio derivative to a cancer model with unknown parameters. *Discrete & Continuous Dynamical Systems-S*, 14(10):3557.

[40] El-Sayed, A. M. A., Arafa, A., and Hagag, A. (2023). Mathematical model for the novel coronavirus (2019-nCOV) with clinical data using fractional operator. *Numerical methods for partial differential equations*, 32(2):1008–1029.

[41] Evirgen, F. (2023). Transmission of Nipah virus dynamics under Caputo fractional derivative. *Journal of Computational and Applied Mathematics*, 418:114654.

[42] Farman, M., Batool, M., Nisar, K. S., Ghaffari, A. S., and Ahmad, A. (2023a). Controllability and analysis of sustainable approach for cancer treatment with chemotherapy by using the fractional operator. *Results in Physics*, 51:106630.

[43] Farman, M., Besbes, H., Nisar, K. S., and Omri, M. (2023b). Analysis and dynamical transmission of covid-19 model by using caputo-fabrizio derivative. *Alexandria Engineering Journal*, 66:597–606.

[44] Fathoni, M. I. A., Gunardi, Kusumo, F. A., and Hutajulu, S. H. (2019). Mathematical model analysis of breast cancer stages with side effects on heart in chemotherapy patients. *AIP Conference Proceedings*, 2192:060007–1—-060007–2.

[45] Ferreira, R. (2013). A lyapunov-type inequality for a fractional boundary value problem. *Fractional calculus and applied analysis*, 16(4):978–984.

[46] Ferreira, R. A. (2019). Novel lyapunov-type inequalities for sequential fractional boundary value problems. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas*, 113:171–179.

[47] Ferreira, R. A. and Pinto, G. (2016). Lyapunov-type inequalities for some sequential fractional boundary value problems. *Adv. Dyn. Syst. Appl*, 11(1):33–43.

[48] Ferreira, R. A. C. (2014). On a Lyapunov-type inequality and the zeros of a certain Mittag–Leffler function. *Journal of Mathematical Analysis and Applications*, 412(2):1058–1063.

[49] Fitzmaurice, C., Dicker, D., Pain, S., Hamavid, H., M Moradi-Lakeh, M. F. M., Allen, C., Hansen, G., Woodbrook, R., Wolfe, C., and Hamaadeh, R. R. (2015). The global burden of cancer 2013. *JAMA Oncology*, 1:505–527.

[50] Galán-Huerta, K., Rivas-Estilla, A., Fernández-Salas, I., Farfan-Ale, J., and Ramos-Jiménez, J. (2015). Chikungunya virus: A general overview. *Medicina Universitaria*, 17(68):175–183.

[51] Ghaleb, S. A., Elaiw, A., Alnegga, M., Ghandourah, E., and Alade, T. O. (2023). Global stability of virus dynamics of an adaptive immune response with two routes of infection and latency. *International Journal of Dynamics and Control*, 11(3):1002–1019.

[52] Gómez-Aguilar, J. F., Yépez-Martínez, H., Calderón-Ramón, C., Cruz-Orduña, I., Escobar-Jiménez, R. F., and Olivares-Peregrino, V. H. (2015). Modeling of a mass-spring-damper system by fractional derivatives with and without a singular kernel. *Entropy*, 17(9):6289–6303.

[53] Gómez-Aguilar, J. F. and Atangana, A. (2017). New insight in fractional differenatiation: power, exponential decay and Mittag-Leffler laws and applications. *The European Physical Journal Plus*, 132:1–21.

[54] Gonzalez-Parra, G., Díaz-Rodríguez, M., and Arenas, A. J. (2020). Mathematical modeling to design public health policies for Chikungunya epidemic using optimal control. *Optimal Control Applications and Methods*, 41(5):1584–1603.

[55] Hahnfeldt, P., Panigrahy, D., Folkman, J., and Hlatky, L. (1999). Tumor development under angiogenic signaling: A dynamical theory of tumor growth, treatment response, and postvascular dormancy. *Cancer Research*, 59(19):4770–4775.

[56] Hale, J. K. and Lunel, S. M. V. (2013). *Introduction to functional differential equations*, volume 99. Springer Science & Business Media.

[57] He, D. H. and Xu, J. X. (2017). A MATHEMATICAL MODEL of PANCREATIC CANCER with TWO KINDS of TREATMENTS. *Journal of Biological Systems*, 25(1):83–104.

[58] Higgins, B., Kolinsky, K., Linn, M., Adames, V., Zhang, Y. E., Moisa, C., Dugan, U., Heimbrook, D., and Packman, K. (2007). Antitumor activity of capecitabine and bevacizumab combination in a human estrogen receptor-negative breast adenocarcinoma xenograft model. *Anticancer Research*, 27:2279–2287.

[59] Hoang, T., Huang, S., Armstrong, E., Eickhoff, J. C., and Harari, P. M. (2012). Enhancement of radiation response with bevacizumab. *Journal of Experimental and Clinical Cancer Research*, 31(1):1–8.

[60] Hussain, T., Awan, A. U., Abro, K. A., Ozair, M., Manzoor, M., Gómez-Aguilar, J. F., and Galal, A. M. (2022). A passive verses active exposure of mathematical smoking model: A role for optimal and dynamical control. *Nonlinear Engineering*, 11(1):507–521.

[61] Jena, R. M., Chakraverty, S., and Baleanu, D. (2021). SIR epidemic model of childhood diseases through fractional operators with Mittag-Leffler and exponential kernels. *Mathematics and Computers in Simulation*, 182:514–534.

[62] Jigme M. Sethi, M. and Carolyn L. Rochester, M. (2000). Smoking and chronic obstructive pulmonary disease. *CLINICS IN CHEST MEDICINE*, 21(1):67–86.

[63] Jleli, M. and Samet, B. (2015a). Lyapunov-type inequalities for a fractional differential equation with mixed boundary conditions. *Math. Inequal. Appl*, 18(2):443–451.

[64] Jleli, M. and Samet, B. (2015b). Lyapunov-type inequalities for fractional boundary-value problems. *Electronic Journal of Differential Equations*, 2015(88):1–11.

[65] Jose, S. A., Raja, R., Zhu, Q., Alzabut, J., Niezabitowski, M., and Balas, V. E. (2022). Impact of strong determination and awareness on substance addictions: A mathematical modeling approach. *Mathematical Methods in the Applied Sciences*, 45(8):4140–4160.

[66] Kadir, N. N. A., Shahadat, M., and Ismail, S. (2017). Formulation study for softening of hard water using surfactant modified bentonite adsorbent coating. *Applied Clay Science*, 137:168–175.

[67] Kaur, G., Begum, R., Thota, S., and Batra, S. (2019). A systematic review of smoking-related epigenetic alterations. *Archives of Toxicology*, 93(10):2715–2740.

[68] Kaur, P. and Chu, J. J. H. (2013). Chikungunya virus: An update on antiviral development and challenges. *Drug Discovery Today*, 18(19-20):969–983.

[69] Khalid, A., Rehan, A., Nisar, K. S., and Osman, M. S. (2021). Splines solutions of boundary value problems that arises in sculpturing electrical process of motors with two rotating mechanism circuit. *Physica Scripta*, 96:104001.

[70] Khan, H., Alzabut, J., Shah, A., He, Z. Y., Etemad, S., Rezapour, S., and Zada, A. (2023). On Fractal-Fractional Waterborne Disease Model: a Study on Theoretical and Numerical Aspects of Solutions Via Simulations. *Fractals*, 31(4):2340055–1—-2340055–16.

[71] Khan, Z. A., Haq, S. U., Khan, T. S., Khan, I., and Nisar, K. S. (2020). Fractional brinkman type fluid in channel under the effect of mhd with caputo-fabrizio fractional derivative. *Alexandria Engineering Journal*, 59:2901–2910.

[72] Khirsariya, S. R., Chauhan, J. P., and Hathiwala, G. S. (2023a). Study of fractional diabetes model with and without complication class. *Results in Control and Optimization*, 12:100283.

[73] Khirsariya, S. R., Chauhan, J. P., and Rao, S. B. (2024). A robust computational analysis of residual power series involving general transform to solve fractional differential equations. *Mathematics and Computers in Simulation*, 216:168–186.

[74] Khirsariya, S. R. and Rao, S. B. (2023a). on the semi-analytic technique to deal with nonlinear fractional differential equations. *Journal of Applied Mathematics and Computational Mechanics*, 22:13–26.

[75] Khirsariya, S. R. and Rao, S. B. (2023b). Solution of fractional sawada–kotera–ito equation using caputo and atangana–baleanu derivatives. *Mathematical Methods in the Applied Sciences*, 46:16072–16091.

[76] Khirsariya, S. R., Rao, S. B., and Chauhan, J. P. (2023b). A novel hybrid technique to obtain the solution of generalized fractional-order differential equations. *Mathematics and Computers in Simulation*, 205:272–290.

[77] Khirsariya, S. R., Rao, S. B., and Hathiwala, G. S. (2023c). Investigation of fractional diabetes model involving glucose–insulin alliance scheme. *International Journal of Dynamics and Control*, pages 1–14.

[78] KHİRSARİYA, S., RAO, S., and CHAUHAN, J. (2022). Semi-analytic solution of time-fractional korteweg-de vries equation using fractional residual power series method. *Results in Nonlinear Analysis*, 5:222–234.

[79] Kilbas, A. A., Srivastava, H. M., and Trujillo, J. J. (2006). *Theory and Applications of Fractional Differential Equations*. North-Holland Mathematics Studies. Elsevier Science.

[80] Kril, V., Aiqui-Reboul-Paviet, O., Briant, L., and Amara, A. (2021). New Insights into Chikungunya Virus Infection and Pathogenesis. *Annual Review of Virology*, 8:327–347.

[81] Kumar, S., Chauhan, R. P., Abdel-Aty, A.-H., and Alharthi, M. R. (2021). A study on transmission dynamics of hiv/aids model through fractional operators. *Results in Physics*, 22:103855.

[82] Kumar, S., Chauhan, R. P., Osman, M. S., and Mohiuddine, S. A. (2023). A study on fractional hiv-aids transmission model with awareness effect. *Mathematical Methods in the Applied Sciences*, 46:8334–8348.

[83] Li, P., Lu, Y., Xu, C., and Ren, J. (2023). Insight into hopf bifurcation and control methods in fractional order bam neural networks incorporating symmetric structure and delay. *Cognitive Computation*, 15:1825–1867.

[84] Li, X. and Xu, J. X. (2016). A mathematical prognosis model for pancreatic cancer patients receiving immunotherapy. *Journal of Theoretical Biology*, 406:42–51.

[85] Liapounoff, A. M. (1948). *Probleme General de la Stabilite du Mouvement. (AM-17), Volume 17*. Princeton University Press, Princeton.

[86] Lo Presti, A., Lai, A., Cella, E., Zehender, G., and Ciccozzi, M. (2014). Chikungunya virus, epidemiology, clinics and phylogenesis: A review. *Asian Pacific Journal of Tropical Medicine*, 7(12):925–932.

[87] Losada, J. and Nieto, J. J. (2015). Properties of a new fractional derivative without singular kernel. *Progress in Fractional Differentiation and Applications*, 1:87–92.

[88] Louzoun, Y., Xue, C., Lesinski, G. B., and Friedman, A. (2014). A mathematical model for pancreatic cancer growth and treatments. *Journal of Theoretical Biology*, 351:74–82.

[89] Maayah, B., Abu Arqub, O., Alnabulsi, S., and Alsulami, H. (2022). Numerical solutions and geometric attractors of a fractional model of the cancer-immune based

on the Atangana-Baleanu-Caputo derivative and the reproducing kernel scheme. *Chinese Journal of Physics*, 80:463–483.

[90] Meyer, A. D., Guerrero, S. M., Dean, N. E., Anderson, K. B., Stoddard, S. T., and Perkins, T. A. (2023). Model-based estimates of chikungunya epidemiological parameters and outbreak risk from varied data types. *Epidemics*, 45:100721.

[91] Mu, D., Xu, C., Liu, Z., and Pang, Y. (2023). Further insight into bifurcation and hybrid control tactics of a chlorine dioxide-iodine-malonic acid chemical reaction model incorporating delays. *Match*, 89:529–566.

[92] Munawar, Z., Ahmad, F., Alanazi, S. A., Nisar, K. S., Khalid, M., Anwar, M., and Murtaza, K. (2022). Predicting the prevalence of lung cancer using feature transformation techniques. *Egyptian Informatics Journal*, 23:109–120.

[93] Ndii, M. Z., Berkanis, F. R., Tambaru, D., Lobo, M., Ariyanto, and Djahi, B. S. (2020). Optimal control strategy for the effects of hard water consumption on kidney-related diseases. *BMC Research Notes*, 13:1–7.

[94] Ngungu, M., Addai, E., Adeniji, A., Adam, U. M., and Oshinubi, K. (2023). Mathematical epidemiological modeling and analysis of monkeypox dynamism with non-pharmaceutical intervention using real data from united kingdom. *Frontiers in Public Health*, 11.

[95] Nwizu, N., Wactawski-Wende, J., and Genco, R. J. (2020). Periodontal disease and cancer: Epidemiologic studies and possible mechanisms. *Periodontology 2000*, 83(1):213–233.

[96] Oke, S. I., Matadi, M. B., and Xulu, S. S. (2018). Optimal Control Analysis of a Mathematical Model for Breast Cancer. *Mathematical and Computational Applications*, 23(2):1–21.

[97] Özköse, F., Yılmaz, S., Yavuz, M., Öztürk, I., Şenel, M. T., BaĞcı, B. c., DoĞan, M., and Önal, Ö. (2022). A Fractional Modeling of Tumor–Immune System Interaction Related to Lung Cancer with Real Data. *The European Physical Journal Plus*, 137(1–28).

[98] Patel, B., Karnik, R., and Patel, D. (2021). Tumour Growth and Its Treatment Response Delineate with Mathematical Models. In *International Conference on mathematical Modelling and Computational Intelligence Techniques*, pages 39–49. Springer.

[99] Pathak, N. (2016). *Lyapunov-type inequality and eigenvalue estimates for fractional problems*. Southern Illinois University at Carbondale.

[100] Pathak, N. (2018). Lyapunov-type inequality for fractional boundary value problems with Hilfer derivative. *Mathematical Inequalities and Applications*, 21(1):179–200.

[101] Pathak, N. (2019). Lyapunov-type inequality and eigenvalue analysis for a fractional problems of order α. *IJIRSET*, 8(2):1391–1398.

[102] Peter, O. J., Panigoro, H. S., Ibrahim, M. A., Otunuga, O. M., Ayoola, T. A., and Oladapo, A. O. (2023a). Analysis and dynamics of measles with control strategies: a mathematical modeling approach. *International Journal of Dynamics and Control*, 11(5):2538–2552.

[103] Peter, O. J., Qureshi, S., Ojo, M. M., Viriyapong, R., and Soomro, A. (2023b). Mathematical dynamics of measles transmission with real data from Pakistan. *Modeling Earth Systems and Environment*, 9(2):1545–1558.

[104] Phua, Z. J., MacInnis, R. J., and Jayasekara, H. (2022). Cigarette smoking and risk of second primary cancer: a systematic review and meta-analysis. *Cancer Epidemiology*, 78:102160.

[105] Plym, A., Zhang, Y., Stopsack, K. H., Delcoigne, B., Wiklund, F., Haiman, C., Kenfield, S. A., Kibel, A. S., Giovannucci, E., Penney, K. L., and Mucci, L. A. (2023). A Healthy Lifestyle in Men at Increased Genetic Risk for Prostate Cancer. *European urology*, 83(4):343–351.

[106] Podlubny, I. (1999). *Fractional Differential Equations*, volume 198. Academic press New York.

[107] Qureshi, S., Akanbi, M. A., Shaikh, A. A., Wusu, A. S., Ogunlaran, O. M., Mahmoud, W., and Osman, M. S. (2023). A new adaptive nonlinear numerical method for singular and stiff differential problems. *Alexandria Engineering Journal*, 74:585–597.

[108] Qureshi, S. and Atangana, A. (2019). Mathematical analysis of dengue fever outbreak by novel fractional operators with field data. *Physica A: Statistical Mechanics and its Applications*, 526:121–127.

[109] Qureshi, S., Bonyah, E., and Shaikh, A. A. (2019a). Classical and contemporary fractional operators for modeling diarrhea transmission dynamics under real statistical data. *Physica A: Statistical Mechanics and its Applications*, 535:122496.

[110] Qureshi, S., Soomro, A., Hincal, E., Lee, J. R., Park, C., and Osman, M. S. (2022). An efficient variable stepsize rational method for stiff, singular and singularly perturbed problems. *Alexandria Engineering Journal*, 61:10953–10963.

[111] Qureshi, S. and Yusuf, A. (2019). Modeling chickenpox disease with fractional derivatives: From caputo to atangana-baleanu. *Chaos, Solitons & Fractals*, 122:111–118.

[112] Qureshi, S., Yusuf, A., Shaikh, A. A., and Inc, M. (2019b). Transmission dynamics of varicella zoster virus modeled by classical and novel fractional operators using real statistical data. *Physica A: Statistical Mechanics and its Applications*, 534:122–149.

[113] Qureshi, S., Yusuf, A., Shaikh, A. A., Inc, M., and Baleanu, D. (2019c). Fractional modeling of blood ethanol concentration system with real data application. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 29(1):013143.

[114] Rashid, S., Kubra, K. T., Sultana, S., Agarwal, P., and Osman, M. S. (2022). An approximate analytical view of physical and biological models in the setting of caputo operator via elzaki transform decomposition method. *Journal of Computational and Applied Mathematics*, 413:114378.

[115] Rawla, P., Sunkara, T., and Gaduputi, V. (2019). Epidemiology of Pancreatic Cancer: Global Trends, Etiology and Risk Factors. *World Journal of Oncology*, 10(1):10–27.

[116] Reynales-Shigematsu, L. M., Barnoya, J., Cavalcante, T., Aburto, T. C., Romieu, I., Stern, M. C., Barquera, S., Corvalán, C., Hallal, P. C., Canelo-Aybar, C., Alvarado-Villacorta, R., Espina, C., Feliu, A., and Rivera, J. A. (2023). Latin America and the Caribbean Code Against Cancer 1st edition: Tobacco and nicotine-related products, secondhand smoke, and alcohol and cancer. *Cancer Epidemiology*, 86:102413.

[117] Rezapour, S., Etemad, S., and Mohammadi, H. (2020). A mathematical analysis of a system of Caputo–Fabrizio fractional differential equations for the anthrax disease model in animals. *Advances in Difference Equations*, 481(1):1–30.

[118] Rong, J. and Bai, C. (2015). Lyapunov-type inequality for a fractional differential equation with fractional boundary conditions. *Advances in Difference Equations*, 2015(1):1–10.

[119] Sabir, Z., Munawar, M., Abdelkawy, M. A., Raja, M. A. Z., Ünlü, C., Jeelani, M. B., and Alnahdi, A. S. (2022). Numerical Investigations of the Fractional-Order Mathematical Model Underlying Immune-Chemotherapeutic Treatment for Breast Cancer Using the Neural Networks. *Fractal and Fractional*, 6(4).

[120] Sadki, M., Danane, J., and Allali, K. (2023). Hepatitis C virus fractional-order model: mathematical analysis. *Modeling Earth Systems and Environment*, 9(2):1695–1707.

[121] Sari, E. R., Lestari, D., Yulianti, E., and Subekti, R. (2019). Stability analysis of a mathematical model of tumor with chemotherapy. *Journal of Physics: Conference Series*, 1321(2).

[122] Schwartz, O. and Albert, M. L. (2010). Biology and pathogenesis of chikungunya virus. *Nature Reviews Microbiology*, 8(7):491–500.

[123] Selvakumaran, M., Yao, K. S., Feldman, M. D., and O'Dwyer, P. J. (2008). Antitumor effect of the angiogenesis inhibitor bevacizumab is dependent on susceptibility of tumors to hypoxia-induced apoptosis. *Biochemical Pharmacology*, 75:627–638.

[124] Senior, R. M. and Anthonisen, N. R. (1998). Chronic obstructive pulmonary disease (copd). *American journal of respiratory and critical care medicine*, 157(4):S139–S147.

[125] Shah, I., Eiman, Alrabaiah, H., Ozdemir, B., and ur Rehman Irshad, A. (2023). Using advanced analysis together with fractional order derivative to investigate a smoking tobacco cancer model. *Results in Physics*, 51:106700.

[126] Sharma, S., Goswami, P., Baleanu, D., and Shankar Dubey, R. (2023). Comprehending the model of omicron variant using fractional derivatives. *Applied Mathematics in Science and Engineering*, 31(1):1–25.

[127] Shi, L., Tayebi, S., Arqub, O. A., Osman, M. S., Agarwal, P., Mahamoud, W., Abdel-Aty, M., and Alhodaly, M. (2023). The novel cubic b-spline method for fractional painlevé and bagley-trovik equations in the caputo, caputo-fabrizio, and conformable fractional sense. *Alexandria Engineering Journal*, 65:413–426.

[128] SHI, L. E. I., RASHID, S., SULTANA, S., KHALID, A., AGARWAL, P., and OSMAN, M. S. (2023). Semi-analytical view of time-fractional pdes with proportional delays pertaining to index and mittag-leffler memory interacting with hybrid transforms. *Fractals*, 31:2340071.

[129] Shivani Sharma Pranay Goswami, D. B. and Dubey, R. S. (2023). Comprehending the model of omicron variant using fractional derivatives. *Applied Mathematics in Science and Engineering*, 31(1):2159027.

[130] Sofia, I. R., Bandekar, S. R., and Ghosh, M. (2023). Mathematical modeling of smoking dynamics in society with impact of media information and awareness. *Results in Control and Optimization*, 11:100233.

[131] Sofia, I. R. and Ghosh, M. (2023). Mathematical modeling of smoking habits in the society. *Stochastic Analysis and Applications*, 41:918–937.

[132] Solís-Pérez, J. E., Gómez-Aguilar, J. F., and Atangana, A. (2019). A fractional mathematical model of breast cancer competition model. *Chaos, Solitons & Fractals*, 127:38–54.

[133] Solís-Pérez, J. E., Gómez-Aguilar, J. F., and Atangana, A. (2019). A fractional mathematical model of breast cancer competition model. *Chaos, Solitons & Fractals*, 127:38–54.

[134] Sumaiya Sadika Tuly, M. M. and Karim, A. (2023). Mathematical modeling of nutritional, color, texture, and microbial activity changes in fruit and vegetables during drying: A critical review. *Critical Reviews in Food Science and Nutrition*, 63:1877–1900.

[135] Tambaru, D., Djahi, B. S., and Ndii, M. Z. (2018). The effects of hard water consumption on kidney function: Insights from mathematical modelling. *AIP Conference Proceedings*, 1937:020020–1—-020020–7.

[136] Tang, T. Q., Shah, Z., Bonyah, E., Jan, R., Shutaywi, M., and Alreshidi, N. (2022). Modeling and Analysis of Breast Cancer with Adverse Reactions of Chemotherapy Treatment through Fractional Derivative. *Computational and Mathematical Methods in Medicine*, 2022:1–119.

[137] Thabet, S. T., Abdo, M. S., and Shah, K. (2021). Theoretical and numerical analysis for transmission dynamics of covid-19 mathematical model involving caputo–fabrizio derivative. *Advances in Difference Equations*, 2021.

[138] Thabet, S. T. and Kedim, I. (2023). Study of nonlocal multiorder implicit differential equation involving hilfer fractional derivative on unbounded domains. *Journal of Mathematics*, 2023.

[139] Thabet, S. T., Vivas-Cortez, M., and Kedim, I. (2023). Analytical study of abc-fractional pantograph implicit differential equation with respect to another function. *AIMS Mathematics*, 8:23635–23654.

[140] Thabet, S. T. M., Abdo, M. S., Shah, K., and Abdeljawad, T. (2020). Study of

transmission dynamics of covid-19 mathematical model under abc fractional order derivative. *Results in Physics*, 19:103507.

[141] Tu, Z. Z., Lu, Q., Zhang, Y. B., Shu, Z., Lai, Y. W., Ma, M. N., Xia, P. F., Geng, T. T., Chen, J. X., Li, Y., Wu, L. J., Ouyang, J., Rong, Z., Ding, X., Han, X., Chen, S. H., He, M. A., Zhang, X. M., Liu, L. G., Wu, T. C., Wu, S. L., Liu, G., and Pan, A. (2023). Associations of Combined Healthy Lifestyle Factors with Risks of Diabetes, Cardiovascular Disease, Cancer, and Mortality Among Adults with Prediabetes: Four Prospective Cohort Studies in China, the United Kingdom, and the United States. *Engineering*, 22:141–148.

[142] Twardella, D., Loew, M., Rothenbacher, D., Stegmaier, C., Ziegler, H., and Brenner, H. (2006). The diagnosis of a smoking-related disease is a prominent trigger for smoking cessation in a retrospective cohort study. *Journal of clinical epidemiology*, 59(1):82–89.

[143] Ulam, S. (1960). *A Collection of Mathematical Problems*. Interscience tracts in pure and applied mathematics. Interscience Publishers.

[144] Ulam, S. M. (2004). *Problems in Modern Mathematics*. Dover Publications.

[145] Ullah, S., Khan, M. A., Farooq, M., Hammouch, Z., and Baleanu, D. (2020). A fractional model for the dynamics of tuberculosis infection using caputo-fabrizio derivative. *American Institute of Mathematical Sciences*, 13(3).

[146] Van den Driessche, P. (2017). Reproduction numbers of infectious disease models. *Infectious disease modelling*, 2(3):288–303.

[147] Vasiliadis, I., Kolovou, G., and Mikhailidis, D. P. (2014). Cardiotoxicity and Cancer Therapy. *Angiology*, 65(5):369–371.

[148] Vellappandi, M., Kumar, P., and Govindaraj, V. (2023). Role of fractional derivatives in the mathematical modeling of the transmission of Chlamydia in the United States from 1989 to 2019. *Nonlinear Dynamics*, 111(5):4915–4929.

[149] Vu, D. M., Jungkind, D., and LaBeaud, A. D. (2017). Chikungunya Virus. *Clinics in Laboratory Medicine*, 37(2):371–382.

[150] Weber, M. F., Sarich, P. E., Vaneckova, P., Wade, S., Egger, S., Ngo, P., Joshy, G., Goldsbury, D. E., Yap, S., Feletto, E., Vassallo, A., Laaksonen, M. A., Grogan, P., O'Connell, D. L., Banks, E., and Canfell, K. (2021). Cancer incidence and cancer death in relation to tobacco smoking in a population-based Australian cohort study. *International Journal of Cancer*, 149:1076–1088.

[151] Wei, H. C. (2020). Mathematical modeling of ER-positive breast cancer treatment with AZD9496 and palbociclib. *AIMS Mathematics*, 5(4):3446–3455.

[152] Xu, C., Cui, Q., Liu, Z., Pan, Y., Cui, X., Ou, W., ur Rahman, M., Farman, M., Ahmad, S., and Zeb, A. (2023a). Extended hybrid controller design of bifurcation in a delayed chemostat model. *Match*, 90:609–648.

[153] Xu, C., Cui, X., Li, P., Yan, J., and Yao, L. (2023b). Exploration on dynamics in a discrete predator–prey competitive model involving feedback controls. *Journal of Biological Dynamics*, 17.

[154] Xu, C., Farman, M., Akgül, A., Nisar, K. S., and Ahmad, A. (2022). Modeling and analysis fractal order cancer model with effects of chemotherapy. *Chaos, Solitons & Fractals*, 161:112325.

[155] Xu, C., Mu, D., Liu, Z., Pang, Y., Aouiti, C., Tunç, O., Ahmad, S., and Zeb, A. (2023c). Bifurcation dynamics and control mechanism of a fractional–order delayed brusselator chemical reaction model. *Match*, 89:73–106.

[156] Xu, C., Mu, D., Pan, Y., Aouiti, C., and Yao, L. (2023d). Exploring bifurcation in a fractional-order predator-prey system with mixed delays. *J. Appl. Anal. Comput*, 13:1119–1136.

[157] Yadeta, H. B. and Shaw, S. (2023). Magnetic drug targeting during casson blood flow in a microvessel: A caputo fractional model. *Journal of Magnetism and Magnetic Materials*, 568:170363.

[158] YAO, S.-W., ARQUB, O. A. B. U., TAYEBI, S., OSMAN, M. S., MAHMOUD, W., INC, M., and ALSULAMI, H. (2023). A novel collective algorithm using cubic uniform spline and finite difference approaches to solving fractional diffusion singular wave model through damping-reaction forces. *Fractals*, 31:2340069.

[159] Yao, S.-W., Behera, S., Inc, M., Rezazadeh, H., Virdi, J. P. S., Mahmoud, W., Arqub, O. A., and Osman, M. S. (2022). Analytical solutions of conformable drinfel'd–sokolov–wilson and boiti leon pempinelli equations via sine–cosine method. *Results in Physics*, 42:105990.

[160] Yousef, A., Bozkurt, F., and Abdeljawad, T. (2020). Mathematical modeling of the immune-chemotherapeutic treatment of breast cancer under some control parameters. *Advances in Difference Equations*, 2020.

[161] Yousefi, M., Najafi Saleh, H., Yaseri, M., Jalilzadeh, M., and Mohammadi, A. A. (2019). Association of consumption of excess hard water, body mass index and waist circumference with risk of hypertension in individuals living in hard and soft water areas. *Environmental Geochemistry and Health*, 41:1213–1221.

[162] Zarin, R., Khaliq, H., Khan, A., Ahmed, I., and Humphries, U. W. (2023). A Numerical Study Based on Haar Wavelet Collocation Methods of Fractional-Order Antidotal Computer Virus Model. *Symmetry*, 15,621(3):1–24.