

References

Abakumova, O.Y., Podobed, O.V., Karalkin, P.A., Kondakova, L.I. and Sokolov, N.N., 2012. Antitumor activity of L-asparaginase from *Erwinia carotovora* against different human and animal leukemic and solid tumor cell lines. *Biochemistry (Moscow) Supplement Series B: Biomedical Chemistry*, 6(4), pp.307-316.

Aghaiypour, K., Wlodawer, A. and Lubkowski, J., 2001. Structural basis for the activity and substrate specificity of *Erwinia chrysanthemi* L-asparaginase. *Biochemistry*, 40(19), pp.5655-5664.

Aishwarya, S.S., Iyappan, S., Vijaya Lakshmi, K. and Rajnish, K.N., 2017. In silico analysis, molecular cloning, expression and characterization of L-asparaginase gene from *Lactobacillus reuteri* DSM 20016. *3 Biotech*, 7(5), pp.1-10.

Aishwarya, S.S., Selvarajan, E., Iyappan, S. and Rajnish, K.N., 2019. Recombinant L-Asparaginase II from *Lactobacillus casei* subsp. *casei* ATCC 393 and Its Anticancer Activity. *Indian journal of microbiology*, 59(3), pp.313-320.

Alberts, S.R., Bretscher, M., Wiltsie, J.C., O'Neill, B.P., Mokri, B. and Witzig, T.E., 1999. Thrombosis related to the use of L-asparaginase in adults with acute lymphoblastic leukemia: a need to consider coagulation monitoring and clotting factor replacement. *Leukemia & lymphoma*, 32(5-6), pp.489-496.

Alrumman, S.A., Mostafa, Y.S., Al-Izran, K.A., Alfaifi, M.Y., Taha, T.H. and Elbehairi, S.E., 2019. Production and anticancer activity of an L-asparaginase from *Bacillus licheniformis* isolated from the Red Sea, Saudi Arabia. *Scientific reports*, 9(1), pp.1-14.

Andersen, M.R. and Nielsen, J.E.N.S., 2009. Current status of systems biology in *Aspergilli*. *Fungal Genetics and Biology*, 46(1), pp.S180-S190.

Aung, H.P., Bocola, M., Schleper, S. and Röhm, K.H., 2000. Dynamics of a mobile loop at the active site of *Escherichia coli* asparaginase. *Biochimica et Biophysica Acta (BBA)-Protein Structure and Molecular Enzymology*, 1481(2), pp.349-359.

Avramis, V.I. and Tiwari, P.N., 2006. Asparaginase (native ASNase or pegylated ASNase) in the treatment of acute lymphoblastic leukemia. *International journal of nanomedicine*, 1(3), p.241.

Badoei-Dalfard, A., 2015. Purification and characterization of l-asparaginase from *Pseudomonas aeruginosa* strain SN004: production optimization by statistical methods. *Biocatalysis and Agricultural Biotechnology*, 4(3), pp.388-397.

Bagewadi, Z.K., Mulla, S.I. and Ninnekar, H.Z., 2018. Optimization of endoglucanase production from *Trichoderma harzianum* strain HZN11 by central composite design under response surface methodology. *Biomass Conversion and Biorefinery*, 8(2), pp.305-316.

Bank, H.L., 1988. Rapid assessment of islet viability with acridine orange and propidium iodide. *In vitro cellular & developmental biology*, 24(4), pp.266-273.

Bano, M. and Sivaramakrishnan, V.M., 1980. Preparation and properties of L-asparaginase from green chillies (*Capsicum annum* L.). *Journal of Biosciences*, 2(4), pp.291-297.

Barros, R.M., Ferreira, C.A., Silva, S.V. and Malcata, F.X., 2001. Quantitative studies on the enzymatic hydrolysis of milk proteins brought about by cardosins precipitated by ammonium sulfate. *Enzyme and Microbial Technology*, 29(8-9), pp.541-547.

Barth, H.G., Jackson, C. and Boyes, B.E., 1994. Size exclusion chromatography. *Analytical chemistry*, 66(12), pp.595-620.

Baskar, G. and Aiswarya, R., 2018. Overview on mitigation of acrylamide in starchy fried and baked foods. *Journal of the Science of Food and Agriculture*, 98(12), pp.4385-4394.

Beckett, A. and Gervais, D., 2019. What makes a good new therapeutic L-asparaginase?. *World Journal of Microbiology and Biotechnology*, 35(10), pp.1-13.

Beinart, G. and Damon, L., 2004. Thrombosis associated with l-asparaginase therapy and low fibrinogen levels in adult acute lymphoblastic leukemia. *American journal of hematology*, 77(4), pp.331-335.

Bhagya, S. and Sastry, M.S., 2003. Chemical, functional and nutritional properties of wet dehulled niger (*Guizotia abyssinica* Cass.) seed flour. *LWT-Food Science and Technology*, 36(7), pp.703-708.

Boratyński, F., Szczepańska, E., Grudniewska, A., Gniłka, R. and Olejniczak, T., 2018. Improving of hydrolases biosynthesis by solid-state fermentation of *Penicillium camemberti* on rapeseed cake. *Scientific reports*, 8(1), pp.1-9.

Boyd, J.W. and Phillips, A.W., 1971. Purification and properties of L-asparaginase from *Serratia marcescens*. *Journal of bacteriology*, 106(2), pp.578-587.

Broome, J.D., 1961. Evidence that the L-asparaginase activity of guinea pig serum is responsible for its antilymphoma effects. *Nature*, 191(4793), pp.1114-1115.

Broome, J.D., 1963. Evidence that the L-asparaginase of guinea pig serum is responsible for its antilymphoma effects: I. properties of the L-asparaginase of guinea pig serum in relation to those of the antilymphoma substance. *The Journal of experimental medicine*, 118(1), pp.99-120.

Broome, J.D., 1963. Evidence that the L-asparaginase of guinea pig serum is responsible for its antilymphoma effects: II. Lymphoma 6C3HED cells cultured in a medium devoid of L-asparagine lose their susceptibility to the effects of guinea pig serum in vivo. *The Journal of experimental medicine*, 118(1), pp.121-148.

Broome, J.D., 1981. L-Asparaginase: discovery and development as a tumor-inhibitory agent. *Cancer treatment reports*, 65, pp.111-114.

Burgess, R.R., 2018. A brief practical review of size exclusion chromatography: rules of thumb, limitations, and troubleshooting. *Protein expression and purification*, 150, pp.81-85.

Campbell, H.A., Mashburn, L.T., Boyse, E.A. and Old, L.J., 1967. Two L-asparaginases from *Escherichia coli* B. Their separation, purification, and antitumor activity. *Biochemistry*, 6(3), pp.721-730.

Capizzi, R.L., Bertino, J.R. and Handschumacher, R.E., 1970. L-asparaginase. *Annual Review of Medicine*, 21(1), pp.433-444.

Capizzi, R.L., Bertino, J.R., Skeel, R.T., Creasey, W.A., Zanes, R., Olayon, C., Peterson, R.G. and Handschumacher, R.E., 1971. L-asparaginase: clinical, biochemical, pharmacological, and immunological studies. *Annals of internal medicine*, 74(6), pp.893-901.

Cecconello, D.K., Magalhães, M.R.D., Werlang, I.C.R., Lee, M.L.D.M., Michalowski, M.B. and Daudt, L.E., 2020. Asparaginase: An old drug with new questions. *Hematology, Transfusion and Cell Therapy*, 42, pp.275-282.

Chakraborty, M. and Shivakumar, S., 2021. Bioprospecting of the agaricomycete *Ganoderma australe* GPC191 as novel source for L-asparaginase production. *Scientific Reports*, 11(1), pp.1-8.

Chakravarty, N., Singh, J. and Singh, R.P., 2021. A potential type-II L-asparaginase from marine isolate *Bacillus australimaris* NJB19: statistical optimization, in silico analysis and structural modeling. *International Journal of Biological Macromolecules*, 174, pp.527-539.

Chohan, S.M. and Rashid, N., 2013. TK1656, a thermostable L-asparaginase from *Thermococcus kodakaraensis*, exhibiting highest ever reported enzyme activity. *Journal of bioscience and bioengineering*, 116(4), pp.438-443.

Costa, I.M., Custódio Moura, D., Meira Lima, G., Pessoa, A., Oresco dos Santos, C., de Oliveira, M.A. and Monteiro, G., 2022. Engineered asparaginase from *Erwinia chrysanthemi* enhances asparagine hydrolase activity and diminishes enzyme immunoreactivity-a new promise to treat acute lymphoblastic leukemia. *Journal of Chemical Technology & Biotechnology*, 97(1), pp.228-239.

Costa-Silva, T.A., Camacho-Córdova, D.I., Agamez-Montalvo, G.S., Parizotto, L.A., Sánchez-Moguel, I. and Pessoa-Jr, A., 2019. Optimization of culture conditions and bench-scale production of anticancer enzyme L-asparaginase by submerged fermentation from *Aspergillus terreus* CCT 7693. *Preparative Biochemistry and Biotechnology*, 49(1), pp.95-104.

Cole, S., Brosch, R., Parkhill, J., Garnier, T., Churcher, C., Harris, D., Gordon, S.V., Eiglmeier, K., Gas, S., Barry, C.3. and Tekaia, F., 1998. Deciphering the biology of *Mycobacterium tuberculosis* from the complete genome sequence. *Nature*, 396(6707), pp.190-190.

da Cunha, M.C., Silva, L.C., Sato, H.H. and de Castro, R.J.S., 2018. Using response surface methodology to improve the L-asparaginase production by *Aspergillus niger* under solid-state fermentation. *Biocatalysis and agricultural biotechnology*, 16, pp.31-36.

da Cunha, M.C., dos Santos Aguilár, J.G., de Melo, R.R., Nagamatsu, S.T., Ali, F., de Castro, R.J.S. and Sato, H.H., 2019. Fungal L-asparaginase: Strategies for production and food applications. *Food Research International*, 126, p.108658.

Desai, K.M., Survase, S.A., Saudagar, P.S., Lele, S.S. and Singhal, R.S., 2008. Comparison of artificial neural network (ANN) and response surface methodology (RSM) in fermentation media optimization: case study of fermentative production of scleroglucan. *Biochemical Engineering Journal*, 41(3), pp.266-273.

Dias, F.F. and Sato, H.H., 2016. Sequential optimization strategy for maximum l-asparaginase production from *Aspergillus oryzae* CCT 3940. *Biocatalysis and agricultural biotechnology*, 6, pp.33-39.

Diaz-Godinez, G., Soriano-Santos, J., Augur, C. and Viniegra-González, G., 2001. Exopectinases produced by *Aspergillus niger* in solid-state and submerged fermentation: a comparative study. *Journal of Industrial Microbiology and Biotechnology*, 26(5), pp.271-275.

Doriya, K. and Kumar, D.S., 2016. Isolation and screening of L-asparaginase free of glutaminase and urease from fungal sp. *3 Biotech*, 6(2), pp.1-10.

Doriya, K. and Kumar, D.S., 2018. Solid state fermentation of mixed substrate for l-asparaginase production using tray and in-house designed rotary bioreactor. *Biochemical Engineering Journal*, 138, pp.188-196.

- Drainas, C., Kinghorn, J.R. and Pateman, J.A., 1977. Aspartic hydroxamate resistance and asparaginase regulation in the fungus *Aspergillus nidulans*. *Microbiology*, 98(2), pp.493-501.
- Ekpenyong, M., Asitok, A., Antai, S., Ekpo, B., Antigha, R. and Ogarekpe, N., 2021. Statistical and artificial neural network approaches to modeling and optimization of fermentation conditions for production of a surface/bioactive glyco-lipo-peptide. *International journal of peptide research and therapeutics*, 27(1), pp.475-495.
- El-Bessoumy, A.A., Sarhan, M. and Mansour, J., 2004. Production, isolation, and purification of L-asparaginase from *Pseudomonas aeruginosa* 50071 using solid-state fermentation. *BMB Reports*, 37(4), pp.387-393.
- El-Gendy, M.M.A.A., Awad, M.F., El-Shenawy, F.S. and El-Bondkly, A.M.A., 2021. Production, purification, characterization, antioxidant and antiproliferative activities of extracellular L-asparaginase produced by *Fusarium equiseti* AHMF4. *Saudi Journal of Biological Sciences*, 28(4), pp.2540-2548.
- El-Naggar, N.E.A., Deraz, S.F., Soliman, H.M., El-Deeb, N.M. and El-Ewasy, S.M., 2016. Purification, characterization, cytotoxicity and anticancer activities of L-asparaginase, anti-colon cancer protein, from the newly isolated alkaliphilic *Streptomyces fradiae* NEAE-82. *Scientific reports*, 6(1), pp.1-16.
- El-Naggar, N.E.A., Moawad, H., El-Shweihy, N.M., El-Ewasy, S.M., Elsehemy, I.A. and Abdelwahed, N.A., 2019. Process development for scale-up production of a therapeutic L-

asparaginase by *Streptomyces brollosae* NEAE-115 from shake flasks to bioreactor. *Scientific reports*, 9(1), pp.1-18.

El-Naggar, N.E.A. and El-Shweihy, N.M., 2020. Bioprocess development for L-asparaginase production by *Streptomyces rochei*, purification and in-vitro efficacy against various human carcinoma cell lines. *Scientific reports*, 10(1), pp.1-21.

El-Sharkawy, A.S., Farag, A.M., Embaby, A.M., Saeed, H. and El-Shenawy, M., 2016. Cloning, expression and characterization of aeruginosa EGYII L-Asparaginase from *Pseudomonas aeruginosa* strain EGYII DSM 101801 in *E. coli* BL21 (DE3) pLysS. *Journal of Molecular Catalysis B: Enzymatic*, 132, pp.16-23.

Elinbaum, S., Ferreyra, H., Ellenrieder, G. and Cuevas, C., 2002. Production of *Aspergillus terreus* β -L-rhamnosidase by solid state fermentation. *Letters in applied microbiology*, 34(1), pp.67-71.

Erdem, Ö., Gültekin-Özgülven, M., Berktaş, I., Erşan, S., Tuna, H.E., Karadağ, A., Özçelik, B., Güneş, G. and Cutting, S.M., 2014. Development of a novel synbiotic dark chocolate enriched with *Bacillus indicus* HU36, maltodextrin and lemon fiber: Optimization by response surface methodology. *LWT-Food Science and Technology*, 56(1), pp.187-193.

Farahat, M.G., Amr, D. and Galal, A., 2020. Molecular cloning, structural modeling and characterization of a novel glutaminase-free L-asparaginase from *Cobetia amphilecti* AMI6. *International journal of biological macromolecules*, 143, pp.685-695.

Feng, Y., Liu, S., Jiao, Y., Gao, H., Wang, M., Du, G. and Chen, J., 2017. Enhanced extracellular production of L-asparaginase from Bacillus subtilis 168 by *B. subtilis* WB600 through a combined strategy. *Applied microbiology and biotechnology*, 101(4), pp.1509-1520.

Fonseca, M.H.G., da Silva Fiúza, T., de Moraes, S.B. and Trevizani, R., 2021. Circumventing the side effects of L-asparaginase. *Biomedicine & Pharmacotherapy*, 139, p.111616.

Friedman, M., 2003. Chemistry, biochemistry, and safety of acrylamide. A review. *Journal of agricultural and food chemistry*, 51(16), pp.4504-4526.

Fung, M.K.L. and Chan, G.C.F., 2017. Drug-induced amino acid deprivation as strategy for cancer therapy. *Journal of Hematology & Oncology*, 10(1), pp.1-18.

Gallagher, S.R., 1995. One-dimensional electrophoresis using nondenaturing conditions. *Current protocols in protein science*, (1), pp.10-3.

Garcia-Bermudez, J., Williams, R.T., Guarecuco, R. and Birsoy, K., 2020. Targeting extracellular nutrient dependencies of cancer cells. *Molecular Metabolism*, 33, pp.67-82.

Gessesse, A., 1997. The use of nug meal as a low-cost substrate for the production of alkaline protease by the alkaliphilic *Bacillus sp.* AR-009 and some properties of the enzyme. *Bioresource technology*, 62(1-2), pp.59-61.

Gesto, D.S., Cerqueira, N.M., Fernandes, P.A. and Ramos, M.J., 2013. Unraveling the enigmatic mechanism of L-asparaginase II with QM/QM calculations. *Journal of the American Chemical Society*, 135(19), pp.7146-7158.

Ghosh, S., Murthy, S., Govindasamy, S. and Chandrasekaran, M., 2013. Optimization of L-asparaginase production by *Serratia marcescens* (NCIM 2919) under solid state fermentation using coconut oil cake. *Sustainable Chemical Processes*, 1(1), pp.1-8.

Ghoshoon, M.B., Berenjian, A., Hemmati, S., Dabbagh, F., Karimi, Z., Negahdaripour, M. and Ghasemi, Y., 2015. Extracellular production of recombinant L-Asparaginase II in *Escherichia coli*: Medium optimization using response surface methodology. *International Journal of Peptide Research and Therapeutics*, 21(4), pp.487-495.

Gillet, J.P., Varma, S. and Gottesman, M.M., 2013. The clinical relevance of cancer cell lines. *Journal of the National Cancer Institute*, 105(7), pp.452-458.

Golbabaie, A., Nouri, H., Moghimi, H. and Khaleghian, A., 2020. L-asparaginase production and enhancement by *Sarocladium strictum*: In vitro evaluation of anti-cancerous properties. *Journal of Applied Microbiology*, 129(2), pp.356-366.

Gulati, R., Saxena, R.K. and Gupta, R., 1997. A rapid plate assay for screening l-asparaginase producing micro-organisms. *Letters in applied microbiology*, 24(1), pp.23-26.

Haider, M.A., Pakshirajan, K., Singh, A. and Chaudhry, S., 2008. Artificial neural network-genetic algorithm approach to optimize media constituents for enhancing lipase production by a soil microorganism. *Applied biochemistry and biotechnology*, 144(3), pp.225-235.

Haskell, C.M. and Canellos, G.P., 1969. L-asparaginase resistance in human leukemia— asparagine synthetase. *Biochemical pharmacology*, 18(10), pp.2578-2580.

Hendriksen, H.V., Kornbrust, B.A., Østergaard, P.R. and Stringer, M.A., 2009. Evaluating the potential for enzymatic acrylamide mitigation in a range of food products using an asparaginase from *Aspergillus oryzae*. *Journal of agricultural and food chemistry*, 57(10), pp.4168-4176.

Hölker, U., Höfer, M. and Lenz, J., 2004. Biotechnological advantages of laboratory-scale solid-state fermentation with fungi. *Applied microbiology and biotechnology*, 64(2), pp.175-186.

Hölker, U. and Lenz, J., 2005. Solid-state fermentation—are there any biotechnological advantages?. *Current opinion in microbiology*, 8(3), pp.301-306.

Hong, H.A., Huang, J.M., Khaneja, R., Hiep, L.V., Urdaci, M.C. and Cutting, S.M., 2008. The safety of *Bacillus subtilis* and *Bacillus indicus* as food probiotics. *Journal of applied microbiology*, 105(2), pp.510-520.

Hosamani, R. and Kaliwal, B.B., 2011. L-asparaginase an anti-tumor agent production by *Fusarium equiseti* using solid state fermentation. *Int J Drug Discov*, 3(2), pp.88-99.

Huang, L., Liu, Y., Sun, Y., Yan, Q. and Jiang, Z., 2014. Biochemical characterization of a novel L-Asparaginase with low glutaminase activity from *Rhizomucor miehei* and its application in food safety and leukemia treatment. *Applied and environmental microbiology*, 80(5), pp.1561-1569.

Husain, I., Sharma, A., Kumar, S. and Malik, F., 2016. Purification and characterization of glutaminase free asparaginase from *Enterobacter cloacae*: in-vitro evaluation of cytotoxic potential against human myeloid leukemia HL-60 cells. *PLoS One*, 11(2), p.e0148877.

Husain, I., Sharma, A., Kumar, S. and Malik, F., 2016. Purification and characterization of glutaminase free asparaginase from *Pseudomonas otitidis*: Induce apoptosis in human leukemia MOLT-4 cells. *Biochimie*, 121, pp.38-51.

Hymavathi, M., Sathish, T., Rao, C. and Prakasham, R.S., 2009. Enhancement of L-asparaginase production by isolated *Bacillus circulans* (MTCC 8574) using response surface methodology. *Applied biochemistry and biotechnology*, 159(1), pp.191-198.

Jia, R., Wan, X., Geng, X., Xue, D., Xie, Z. and Chen, C., 2021. Microbial L-asparaginase for application in acrylamide mitigation from food: Current research status and future perspectives. *Microorganisms*, 9(8), p.1659.

Jiang, J., Batra, S. and Zhang, J., 2021. Asparagine: A metabolite to be targeted in cancers. *Metabolites*, 11(6), p.402.

Jones, G.E. and Mortimer, R.K., 1973. Biochemical properties of yeast L-asparaginase. *Biochemical Genetics*, 9(2), pp.131-146.

Kalil, S.J., Maugeri, F. and Rodrigues, M.I., 2000. Response surface analysis and simulation as a tool for bioprocess design and optimization. *Process biochemistry*, 35(6), pp.539-550.

Kasemiire, A., Avohou, H.T., De Bleye, C., Sacre, P.Y., Dumont, E., Hubert, P. and Ziemons, E., 2021. Design of experiments and design space approaches in the pharmaceutical bioprocess optimization. *European Journal of Pharmaceutics and Biopharmaceutics*, 166, pp.144-154.

Kavitha, A. and Vijayalakshmi, M., 2010. Optimization and Purification of L-Asparaginase Produced by *Streptomyces tendae* TK-VL_333. *Zeitschrift für Naturforschung C*, 65(7-8), pp.528-531.

Kenari, S.L.D., Alemzadeh, I. and Maghsodi, V., 2011. Production of l-asparaginase from *Escherichia coli* ATCC 11303: optimization by response surface methodology. *Food and Bioprocesses Processing*, 89(4), pp.315-321.

Khalil, N.M., Rodríguez-Couto, S. and El-Ghany, M.N.A., 2021. Characterization of *Penicillium crustosum* L-asparaginase and its acrylamide alleviation efficiency in roasted coffee beans at non-cytotoxic levels. *Archives of Microbiology*, 203(5), pp.2625-2637.

Khorshidian, N., Yousefi, M., Shadnoush, M., Siadat, S.D., Mohammadi, M. and Mortazavian, A.M., 2020. Using probiotics for mitigation of acrylamide in food products: a mini review. *Current Opinion in Food Science*, 32, pp.67-75.

Kidd, J.G., 1953. Regression of transplanted lymphomas induced in vivo by means of normal guinea pig serum: I. course of transplanted cancers of various kinds in mice and rats given guinea pig serum, horse serum, or rabbit serum. *The Journal of experimental medicine*, 98(6), pp.565-582.

Kim, S.K., Min, W.K., Park, Y.C. and Seo, J.H., 2015. Application of repeated aspartate tags to improving extracellular production of *Escherichia coli* L-asparaginase isozyme II. *Enzyme and microbial technology*, 79, pp.49-54.

Kiriyama, Y., Kubota, M., Takimoto, T., Kitoh, T., Tanizawa, A., Akiyama, Y. and Mikawa, H., 1989. Biochemical characterization of U937 cells resistant to L-asparaginase: the role of asparagine synthetase. *Leukemia*, 3(4), pp.294-297.

Kishore, V., Nishita, K.P. and Manonmani, H.K., 2015. Cloning, expression and characterization of l-asparaginase from *Pseudomonas fluorescens* for large scale production in E. coli BL21. *3 Biotech*, 5(6), pp.975-981.

Knoderer, H.M., Robarge, J. and Flockhart, D.A., 2007. Predicting asparaginase-associated pancreatitis. *Pediatric blood & cancer*, 49(5), pp.634-639.

Knol, J.J., Linssen, J.P. and van Boekel, M.A., 2010. Unravelling the kinetics of the formation of acrylamide in the Maillard reaction of fructose and asparagine by multiresponse modelling. *Food Chemistry*, 120(4), pp.1047-1057.

Kullas, A.L., McClelland, M., Yang, H.J., Tam, J.W., Torres, A., Porwollik, S., Mena, P., McPhee, J.B., Bogomolnaya, L., Andrews-Polymeris, H. and van der Velden, A.W., 2012. L-asparaginase II produced by *Salmonella typhimurium* inhibits T cell responses and mediates virulence. *Cell host & microbe*, 12(6), pp.791-798.

Kumar, N.M., Ramasamy, R. and Manonmani, H.K., 2013. Production and optimization of L-asparaginase from *Cladosporium sp.* using agricultural residues in solid state fermentation. *Industrial Crops and Products*, 43, pp.150-158.

Kumar, S., Dasu, V.V. and Pakshirajan, K., 2011. Purification and characterization of glutaminase-free L-asparaginase from *Pectobacterium carotovorum* MTCC 1428. *Bioresource technology*, 102(2), pp.2077-2082.

Kumar, S., Darnal, S., Patial, V., Kumar, V., Kumar, V., Kumar, S. and Singh, D., 2022. Molecular cloning, characterization, and in-silico analysis of l-asparaginase from Himalayan *Pseudomonas sp.* PCH44. *3 Biotech*, 12(8), pp.1-13.

Laemmli, U.K., 1970. Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *nature*, 227(5259), pp.680-685.

Lanvers, C., Pinheiro, J.P.V., Hempel, G., Wuerthwein, G. and Boos, J., 2002. Analytical validation of a microplate reader-based method for the therapeutic drug monitoring of L-asparaginase in human serum. *Analytical biochemistry*, 309(1), pp.117-126.

Liu, F.S. and Zajic, J.E., 1972. L-asparaginase synthesis by *Erwinia aroideae*. *Applied Microbiology*, 23(3), pp.667-668.

Lizardi-Jiménez, M.A. and Hernández-Martínez, R., 2017. Solid state fermentation (SSF): diversity of applications to valorize waste and biomass. *3 Biotech*, 7(1), pp.1-9.

Lubkowski, J., Palm, G.J., Gilliland, G.L., Derst, C., Röhm, K.H. and Wlodawer, A., 1996. Crystal structure and amino acid sequence of *Wolinella succinogenes* l-asparaginase. *European journal of biochemistry*, 241(1), pp.201-207.

Lubkowski, J. and Wlodawer, A., 2021. Structural and biochemical properties of L-asparaginase. *The FEBS Journal*, 288(14), pp.4183-4209.

Maan, A.A., Anjum, M.A., Khan, M.K.I., Nazir, A., Saeed, F., Afzaal, M. and Aadil, R.M., 2022. Acrylamide formation and different mitigation strategies during food processing—a review. *Food reviews international*, 38(1), pp.70-87.

Maggi, M., Mittelman, S.D., Parmentier, J.H., Colombo, G., Meli, M., Whitmire, J.M., Merrell, D.S., Whitelegge, J. and Scotti, C., 2017. A protease-resistant *Escherichia coli* asparaginase with outstanding stability and enhanced anti-leukaemic activity in vitro. *Scientific reports*, 7(1), pp.1-16.

Magri, A., Soler, M.F., Lopes, A.M., Cilli, E.M., Barber, P.S., Pessoa, A. and Pereira, J.F., 2018. A critical analysis of L-asparaginase activity quantification methods—colorimetric methods versus high-performance liquid chromatography. *Analytical and bioanalytical chemistry*, 410(27), pp.6985-6990.

Mahajan, R.V., Saran, S., Kameswaran, K., Kumar, V. and Saxena, R.K., 2012. Efficient production of L-asparaginase from *Bacillus licheniformis* with low-glutaminase activity: optimization, scale up and acrylamide degradation studies. *Bioresource technology*, 125, pp.11-16.

Mahajan, R.V., Saran, S., Saxena, R.K. and Srivastava, A.K., 2013. A rapid, efficient and sensitive plate assay for detection and screening of l-asparaginase-producing microorganisms. *FEMS microbiology letters*, 341(2), pp.122-126.

Mahajan, R.V., Kumar, V., Rajendran, V., Saran, S., Ghosh, P.C. and Saxena, R.K., 2014. Purification and characterization of a novel and robust L-asparaginase having low-glutaminase activity from *Bacillus licheniformis*: in vitro evaluation of anti-cancerous properties. *PLoS One*, 9(6), p.e99037.

Manna, S., Sinha, A., Sadhukhan, R. and Chakrabarty, S.L., 1995. Purification, characterization and antitumor activity of L-asparaginase isolated from *Pseudomonas stutzeri* MB-405. *Current microbiology*, 30(5), pp.291-298.

Mascotti, K., McCullough, J. and Burger, S.R., 2000. HPC viability measurement: trypan blue versus acridine orange and propidium iodide. *Transfusion*, 40(6), pp.693-696.

Mashburn, L.T. and Wriston Jr, J.C., 1964. Tumor inhibitory effect of L-asparaginase from *Escherichia coli*. *Archives of Biochemistry and Biophysics*, 105, pp.450-452.

Meena, B., Anburajan, L., Dheenan, P.S., Begum, M., Vinithkumar, N.V., Dharani, G. and Kirubakaran, R., 2015. Novel glutaminase free L-asparaginase from *Nocardiaopsis alba* NIOT-VKMA08: production, optimization, functional and molecular characterization. *Bioprocess and biosystems engineering*, 38(2), pp.373-388.

Métayer, L.E., Brown, R.D., Carlebur, S., Burke, G.A. and Brown, G.C., 2019. Mechanisms of cell death induced by arginase and asparaginase in precursor B-cell lymphoblasts. *Apoptosis*, 24(1), pp.145-156.

Maqsood, B., Basit, A., Khurshid, M. and Bashir, Q., 2020. Characterization of a thermostable, allosteric L-asparaginase from *Anoxybacillus flavithermus*. *International journal of biological macromolecules*, 152, pp.584-592.

Meghavarnam, A.K. and Janakiraman, S., 2017. Solid state fermentation: An effective fermentation strategy for the production of L-asparaginase by *Fusarium culmorum* (ASP-87). *Biocatalysis and Agricultural Biotechnology*, 11, pp.124-130.

Mhetras, N.C., Bastawde, K.B. and Gokhale, D.V., 2009. Purification and characterization of acidic lipase from *Aspergillus niger* NCIM 1207. *Bioresource technology*, 100(3), pp.1486-1490.

Mihooliya, K.N., Nandal, J., Swami, L., Verma, H., Chopra, L. and Sahoo, D.K., 2017. A new pH indicator dye-based method for rapid and efficient screening of l-asparaginase producing microorganisms. *Enzyme and Microbial Technology*, 107, pp.72-81.

Mihooliya, K.N., Nandal, J., Kumari, A., Nanda, S., Verma, H. and Sahoo, D.K., 2020. Studies on efficient production of a novel l-asparaginase by a newly isolated *Pseudomonas resinovorans* IGS-131 and its heterologous expression in *Escherichia coli*. *3 Biotech*, 10(4), pp.1-11.

Mishra, A., 2006. Production of L-asparaginase, an anticancer agent, from *Aspergillus niger* using agricultural waste in solid state fermentation. *Applied Biochemistry and Biotechnology*, 135(1), pp.33-42.

Moguel, I.S., Yamakawa, C.K., Pessoa Jr, A. and Mussatto, S.I., 2020. L-asparaginase production by *Leucosporidium scottii* in a bench-scale bioreactor with co-production of lipids. *Frontiers in bioengineering and biotechnology*, 8, p.576511.

Mohan Kumar, N.S., Shimray, C.A., Indrani, D. and Manonmani, H.K., 2014. Reduction of acrylamide formation in sweet bread with L-asparaginase treatment. *Food and Bioprocess Technology*, 7(3), pp.741-748.

Mostafa, Y., Alrumman, S., Alamri, S., Hashem, M., Al-izran, K., Alfaihi, M., Elbehairi, S.E. and Taha, T., 2019. Enhanced production of glutaminase-free L-asparaginase by marine *Bacillus velezensis* and cytotoxic activity against breast cancer cell lines. *Electronic Journal of Biotechnology*, 42, pp.6-15.

Mottram, D.S., Wedzicha, B.L. and Dodson, A.T., 2002. Acrylamide is formed in the Maillard reaction. *Nature*, 419(6906), pp.448-449.

Mukherjee, J., Majumdar, S. and Scheper, T., 2000. Studies on nutritional and oxygen requirements for production of L-asparaginase by *Enterobacter aerogenes*. *Applied Microbiology and Biotechnology*, 53(2), pp.180-184.

Mukherjee, R., Chakraborty, R. and Dutta, A., 2019. Comparison of optimization approaches (response surface methodology and artificial neural network-genetic algorithm) for a novel mixed culture approach in soybean meal fermentation. *Journal of Food Process Engineering*, 42(5), p.e13124.

Nakahama, K., Imada, A., Igarasi, S. and Tubaki, K., 1973. Formation of L-asparaginase by *Fusarium* species. *Microbiology*, 75(2), pp.269-273.

Narayana, K.J.P., Kumar, K.G. and Vijayalakshmi, M., 2008. L-asparaginase production by *Streptomyces albidoflavus*. *Indian Journal of Microbiology*, 48(3), pp.331-336.

Nelofer, R., Ramanan, R.N., Rahman, R.N.Z.R.A., Basri, M. and Ariff, A.B., 2012. Comparison of the estimation capabilities of response surface methodology and artificial

neural network for the optimization of recombinant lipase production by *E. coli* BL21. *Journal of industrial microbiology and biotechnology*, 39(2), pp.243-254.

Nesbit, M., Chard, R., Evans, A., Karon, M. and Hammond, G.D., 1979. Evaluation of intramuscular versus intravenous administration of L-asparaginase in childhood leukemia. *The American journal of pediatric hematology/oncology*, 1(1), pp.9-13.

Nguyen, H.A., Su, Y., Zhang, J.Y., Antanasijevic, A., Caffrey, M., Schalk, A.M., Liu, L., Rondelli, D., Oh, A., Mahmud, D.L. and Bosland, M.C., 2018. A Novel L-Asparaginase with low L-Glutaminase Coactivity Is Highly Efficacious against Both T-and B-cell Acute Lymphoblastic Leukemias In VivoASNase Efficacy with Low l-Glutaminase Coactivity. *Cancer research*, 78(6), pp.1549-1560.

Nowak-Göttl, U., Ahlke, E., Fleischhack, G., Schwabe, D., Schobess, R., Schumann, C. and Junker, R., 2003. Thromboembolic events in children with acute lymphoblastic leukemia (BFM protocols): prednisone versus dexamethasone administration. *Blood, The Journal of the American Society of Hematology*, 101(7), pp.2529-2533.

Onipe, O.O., Jideani, A.I. and Beswa, D., 2015. Composition and functionality of wheat bran and its application in some cereal food products. *International Journal of Food Science & Technology*, 50(12), pp.2509-2518.

Oza, V.P., Trivedi, S.D., Parmar, P.P. and Subramanian, R.B., 2009. *Withania somnifera* (Ashwagandha): a Novel Source of L-asparaginase. *Journal of integrative plant biology*, 51(2), pp.201-206.

Oza, V.P., Parmar, P.P., Patel, D.H. and Subramanian, R.B., 2011. Cloning, expression and characterization of l-asparaginase from *Withania somnifera* L. for large scale production. *3 Biotech*, 1(1), pp.21-26.

Pandey, A., Soccol, C.R. and Mitchell, D., 2000. New developments in solid state fermentation: I-bioprocesses and products. *Process biochemistry*, 35(10), pp.1153-1169.

Pandey, A., 2003. Solid-state fermentation. *Biochemical engineering journal*, 13(2-3), pp.81-84.

Panosyan, E.H., Seibel, N.L., Martin-Aragon, S., Gaynon, P.S., Avramis, I.A., Sather, H., Franklin, J., Nachman, J., Ettinger, L.J., La, M. and Steinherz, P., 2004. Asparaginase antibody and asparaginase activity in children with higher-risk acute lymphoblastic leukemia: Children's Cancer Group Study CCG-1961. *Journal of pediatric hematology/oncology*, 26(4), pp.217-226.

Pastuszak, I. and Szymona, M., 1975. L-asparaginase activity of *Mycobacterium phlei* under various growth conditions. *Acta Microbiologica Polonica. Series A: Microbiologia Generalis*, 8(3), pp.131-139.

Paul, J.H., 1982. Isolation and characterization of a *Chlamydomonas* L-asparaginase. *Biochemical Journal*, 203(1), pp.109-115.

Plackett, R.L. and Burman, J.P., 1946. The design of optimum multifactorial experiments. *Biometrika*, 33(4), pp.305-325.

Prakash, P., Singh, H.R. and Jha, S.K., 2020. Production, purification and kinetic characterization of glutaminase free anti-leukemic L-asparaginase with low endotoxin level from novel soil isolate. *Preparative Biochemistry & Biotechnology*, 50(3), pp.260-271.

Priyadharshini, S.D. and Bakthavatsalam, A.K., 2016. Optimization of phenol degradation by the microalga *Chlorella pyrenoidosa* using Plackett–Burman design and response surface methodology. *Bioresource Technology*, 207, pp.150-156.

Radadiya, A., Zhu, W., Coricello, A., Alcaro, S. and Richards, N.G., 2020. Improving the treatment of acute lymphoblastic leukemia. *Biochemistry*, 59(35), pp.3193-3200.

Raja, R.A., Schmiegelow, K. and Frandsen, T.L., 2012. Asparaginase-associated pancreatitis in children. *British journal of haematology*, 159(1), pp.18-27.

Ran, T., Jiao, L., Wang, W., Chen, J., Chi, H., Lu, Z., Zhang, C., Xu, D. and Lu, F., 2020. Structures of L-asparaginase from *Bacillus licheniformis* reveal an essential residue for its substrate stereoselectivity. *Journal of Agricultural and Food Chemistry*, 69(1), pp.223-231.

Ravindran, R. and Jaiswal, A.K., 2016. Microbial enzyme production using lignocellulosic food industry wastes as feedstock: a review. *Bioengineering*, 3(4), p.30.

- Reddy, P.R.M., Ramesh, B., Mrudula, S., Reddy, G. and Seenayya, G., 2003. Production of thermostable β -amylase by *Clostridium thermosulfurogenes* SV2 in solid-state fermentation:: Optimization of nutrient levels using response surface methodology. *Process Biochemistry*, 39(3), pp.267-277.
- Robitaille, B., Marcos, B., Veillette, M. and Payre, G., 1996. Modified quasi-Newton methods for training neural networks. *Computers & chemical engineering*, 20(9), pp.1133-1140.
- Roy, M.P., Das, V. and Patra, A., 2018. Isolation, purification and characterization of an extracellular L-asparaginase produced by a newly isolated *Bacillus megaterium* strain MG1 from the water bodies of Moraghat forest, Jalpaiguri, India. *The Journal of General and Applied Microbiology*.
- Sadh, P.K., Duhan, S. and Duhan, J.S., 2018. Agro-industrial wastes and their utilization using solid state fermentation: a review. *Bioresources and Bioprocessing*, 5(1), pp.1-15.
- Saeed, H., Ali, H., Soudan, H., Embaby, A., El-Sharkawy, A., Farag, A., Hussein, A. and Ataya, F., 2018. Molecular cloning, structural modeling and production of recombinant *Aspergillus terreus* L. asparaginase in *Escherichia coli*. *International journal of biological macromolecules*, 106, pp.1041-1051.
- Sanches, M., Krauchenco, S. and Polikarpov, I., 2007. Structure, substrate complexation and reaction mechanism of bacterial asparaginases. *Current Chemical Biology*, 1(1), pp.75-86.

- Sanjeeviroyar, A., Rajendran, A., Muthuraj, M., Basha, K.M. and Thangavelu, V., 2010. Sequential optimization and kinetic modeling of L-asparaginase production by *Pectobacterium carotovorum* in submerged fermentation. *Asia-Pacific Journal of Chemical Engineering*, 5(5), pp.743-755.
- Santos, B., Ponezi, A. and Fileti, A.M., 2017. Development of artificial intelligence models to monitor biosurfactant concentration in real-time using waste as substrate in bioreactor through fermentation by *Bacillus subtilis*. *Chemical Engineering Transactions*, 57, pp.1009-1014.
- Sarquis, M.I.D.M., Oliveira, E.M.M., Santos, A.S. and Costa, G.L.D., 2004. Production of L-asparaginase by filamentous fungi. *Memorias do Instituto Oswaldo Cruz*, 99, pp.489-492.
- Shakambari, G., Sumi, B.M., Ashokkumar, B., Palanivelu, P. and Varalakshmi, P., 2015. Industrial effluent as a substrate for glutaminase free L-asparaginase production from *Pseudomonas plecoglossicida* strain RS1; media optimization, enzyme purification and its characterization. *RSC Advances*, 5(60), pp.48729-48738.
- Shakambari, G., Birendranarayan, A.K., Lincy, M.J.A., Rai, S.K., Ahamed, Q.T., Ashokkumar, B., Saravanan, M., Mahesh, A. and Varalakshmi, P., 2016. Hemocompatible glutaminase free L-asparaginase from marine *Bacillus tequilensis* PV9W with anticancer potential modulating p53 expression. *RSC advances*, 6(31), pp.25943-25951.

Shakambari, G., Ashokkumar, B. and Varalakshmi, P., 2019. L-asparaginase—A promising biocatalyst for industrial and clinical applications. *Biocatalysis and Agricultural Biotechnology*, 17, pp.213-224.

Sharma, D., Singh, K., Singh, K. and Mishra, A., 2019. Insights into the microbial L-asparaginases: from production to practical applications. *Current Protein and Peptide Science*, 20(5), pp.452-464.

Sharma, D. and Mishra, A., 2022. L-asparaginase production in solid-state fermentation using *Aspergillus niger*: process modeling by artificial neural network approach. *Preparative Biochemistry & Biotechnology*, 52(5), pp.549-560.

Sharma, D. and Mishra, A., 2023. Anti-leukemic potential of a novel L-asparaginase preparation from *Bacillus indicus*: bench-scale production, purification and therapeutic application. *3 Biotech*, 13(1), pp.1-14.

Shifrin, S. and Parrott, C.L., 1974. In vitro assembly of L-asparaginase subunits. *Journal of Biological Chemistry*, 249(13), pp.4175-4180.

Shrivastava, A., Khan, A.A., Shrivastav, A., Jain, S.K. and Singhal, P.K., 2012. Kinetic studies of L-asparaginase from *Penicillium digitatum*. *Preparative Biochemistry and Biotechnology*, 42(6), pp.574-581.

Shrivastava, A., Khan, A.A., Khurshid, M., Kalam, M.A., Jain, S.K. and Singhal, P.K., 2016. Recent developments in l-asparaginase discovery and its potential as anticancer agent. *Critical reviews in oncology/hematology*, 100, pp.1-10.

Sindhu, R. and Manonmani, H.K., 2018. L-Asparaginase induces intrinsic mitochondrial-mediated apoptosis in human gastric adenocarcinoma cells and impedes tumor progression. *Biochemical and biophysical research communications*, 503(4), pp.2393-2399.

Singh, K., Sharma, D. and Mishra, A., 2021. Mahua flowers (*Madhuca* sp.) utilization as a carbon-rich natural substrate for the cost-effective bench-scale production of fumaric acid. *SN Applied Sciences*, 3(1), pp.1-11.

Singh, Y., Gundampati, R.K., Jagannadham, M.V. and Srivastava, S.K., 2013. Extracellular L-asparaginase from a protease-deficient *Bacillus aryabhatai* ITBHU02: purification, biochemical characterization, and evaluation of antineoplastic activity in vitro. *Applied biochemistry and biotechnology*, 171(7), pp.1759-1774.

Solomon, W.K. and Zewdu, A.D., 2009. Moisture-dependent physical properties of niger (*Guizotia abyssinica* Cass.) seed. *Industrial crops and products*, 29(1), pp.165-170.

Sousa, I., Quevedo, M.C., Sushkova, A., Ferreira, M.G. and Tedim, J., 2020. Chitosan Microspheres as Carriers for pH-Indicating Species in Corrosion Sensing. *Macromolecular Materials and Engineering*, 305(2), p.1900662.

Stadler, R.H., Blank, I., Varga, N., Robert, F., Hau, J., Guy, P.A., Robert, M.C. and Riediker, S., 2002. Acrylamide from Maillard reaction products. *Nature*, 419(6906), pp.449-450.

Stams, W.A., den Boer, M.L., Beverloo, H.B., Meijerink, J.P., Stigter, R.L., van Wering, E.R., Janka-Schaub, G.E., Slater, R. and Pieters, R., 2003. Sensitivity to L-asparaginase is not associated with expression levels of asparagine synthetase in t (12; 21)+ pediatric ALL. *Blood, The Journal of the American Society of Hematology*, 101(7), pp.2743-2747.

Story, M.D., Voehringer, D.W., Stephens, L.C. and Meyn, R.E., 1993. L-asparaginase kills lymphoma cells by apoptosis. *Cancer chemotherapy and pharmacology*, 32(2), pp.129-133.

Strzelczyk, P., Zhang, D., Dyba, M., Wlodawer, A. and Lubkowski, J., 2020. Generalized enzymatic mechanism of catalysis by tetrameric L-asparaginases from mesophilic bacteria. *Scientific reports*, 10(1), pp.1-16.

Suryawanshi, N., Naik, S. and Eswari, J.S., 2019. Extraction and optimization of exopolysaccharide from *Lactobacillus* sp. using response surface methodology and artificial neural networks. *Preparative Biochemistry and Biotechnology*, 49(10), pp.987-996.

Taeymans, D., Wood, J., Ashby, P., Blank, I., Studer, A., Stadler, R.H., Gondé, P., Eijck, P., Lalljie, S.A.M., Lingnert, H. and Lindblom, M., 2004. A review of acrylamide: an industry perspective on research, analysis, formation, and control. *Critical reviews in food science and nutrition*, 44(5), pp.323-347.

Tallal, L., Tan, C., Oettgen, H., Wollner, N., McCarthy, M., Helson, L., Burchenal, J., Karnofsky, D. and Murphy, M.L., 1970. *E. coli* L-asparaginase in the treatment of leukemia and solid tumors in 131 children. *Cancer*, 25(2), pp.306-320.

Tareke, E., Rydberg, P., Karlsson, P., Eriksson, S. and Törnqvist, M., 2002. Analysis of acrylamide, a carcinogen formed in heated foodstuffs. *Journal of agricultural and food chemistry*, 50(17), pp.4998-5006.

Tiwari, N. and Dua, R.D., 1996. Purification and preliminary characterization of L-asparaginase from *Erwinia aroideae* NRRL B-138. *Indian journal of biochemistry & biophysics*, 33(5), pp.371-376.

Tosa, T., Sano, R., Yamamoto, K., Nakamura, M., Ando, K. and Chibata, I., 1971. L-asparaginase from *Proteus vulgaris*. *Applied Microbiology*, 22(3), pp.387-392.

Uber, J.B., Bulka, N.R., Nogueira, B.B., Martim, D.B., Bueno, P.S. and Barbosa-Tessmann, I.P., 2022. Bioprospection of L-asparaginase producing microorganisms and cloning of the L-asparaginase type II gene from a *Pseudomonas putida* species group isolate. *Biologia*, pp.1-18.

Ueno, T., Ohtawa, K., Mitsui, K., Kodera, Y., Hiroto, M., Matsushima, A., Inada, Y. and Nishimura, H., 1997. Cell cycle arrest and apoptosis of leukemia cells induced by L-asparaginase. *Leukemia*, 11(11), pp.1858-1861.

- Vala, A.K., Sachaniya, B., Dudhagara, D., Panseriya, H.Z., Gosai, H., Rawal, R. and Dave, B.P., 2018. Characterization of L-asparaginase from marine-derived *Aspergillus niger* AKV-MKBU, its antiproliferative activity and bench scale production using industrial waste. *International journal of biological macromolecules*, 108, pp.41-46.
- Vander Heiden, M.G., 2011. Targeting cancer metabolism: a therapeutic window opens. *Nature reviews Drug discovery*, 10(9), pp.671-684.
- Van Engeland, M., Nieland, L.J., Ramaekers, F.C., Schutte, B. and Reutelingsperger, C.P., 1998. Annexin V-affinity assay: a review on an apoptosis detection system based on phosphatidylserine exposure. *Cytometry: The Journal of the International Society for Analytical Cytology*, 31(1), pp.1-9.
- Venkateswarulu, T.C., Prabhakar, K.V., Kumar, R.B. and Krupanidhi, S., 2017. Modeling and optimization of fermentation variables for enhanced production of lactase by isolated *Bacillus subtilis* strain VUVD001 using artificial neural networking and response surface methodology. *3 Biotech*, 7(3), pp.1-7.
- Verma, N., Kumar, K., Kaur, G. and Anand, S., 2007. L-asparaginase: a promising chemotherapeutic agent. *Critical reviews in biotechnology*, 27(1), pp.45-62.
- Vermes, I., Haanen, C., Steffens-Nakken, H. and Reutellingsperger, C., 1995. A novel assay for apoptosis flow cytometric detection of phosphatidylserine expression on early apoptotic cells using fluorescein labelled annexin V. *Journal of immunological methods*, 184(1), pp.39-51.

Vidya, J., Vasudevan, U.M., Soccol, C.R. and Pandey, A., 2011. Cloning, functional expression and characterization of L-asparaginase II from *E. coli* MTCC 739. *Food Technology and Biotechnology*, 49(3), p.286.

Wade, H.E., Elsworth, R., Herbert, D., Keppie, J. and Sargeant, K., 1968. A new L-asparaginase with antitumour activity. *The Lancet*, 292(7571), pp.776-777.

Wang, Y., Wu, H., Zhang, W., Xu, W. and Mu, W., 2021. Efficient control of acrylamide in French fries by an extraordinarily active and thermo-stable L-asparaginase: A lab-scale study. *Food Chemistry*, 360, p.130046.

Willis, R.C. and Woolfolk, C.A., 1974. Asparagine utilization in *Escherichia coli*. *Journal of bacteriology*, 118(1), pp.231-241.

Wingfield, P., 1998. Protein precipitation using ammonium sulfate. *Current protocols in protein science*, 13(1), pp.A-3F.

Xu, F., Oruna-Concha, M.J. and Elmore, J.S., 2016. The use of asparaginase to reduce acrylamide levels in cooked food. *Food chemistry*, 210, pp.163-171.

Yaacob, M.A., Hasan, W.A.N.W., Ali, M.S.M., Rahman, R.N.Z.R.A., Salleh, A.B., Basri, M. and Leow, T.C., 2014. Characterisation and molecular dynamic simulations of J15 asparaginase from *Photobacterium sp.* strain J15. *Acta Biochimica Polonica*, 61(4).

Yaylayan, V.A. and Stadler, R.H., 2005. Acrylamide formation in food: a mechanistic perspective. *Journal of AOAC International*, 88(1), pp.262-267.

Yim, S. and Kim, M., 2019. Purification and characterization of thermostable l-asparaginase from *Bacillus amyloliquefaciens* MKSE in Korean soybean paste. *LWT*, 109, pp.415-421.

Zalewska-Szewczyk, B., Andrzejewski, W., Młynarski, W., Jędrychowska-Dańska, K., Witas, H. and Bodalski, J., 2007. The anti-asparagines antibodies correlate with L-asparagines activity and may affect clinical outcome of childhood acute lymphoblastic leukemia. *Leukemia & lymphoma*, 48(5), pp.931-936.

Zarei, M., Niaei, A., Salari, D. and Khataee, A., 2010. Application of response surface methodology for optimization of peroxi-coagulation of textile dye solution using carbon nanotube–PTFE cathode. *Journal of hazardous materials*, 173(1-3), pp.544-551.

Zhang, J., Fan, J., Venneti, S., Cross, J.R., Takagi, T., Bhinder, B., Djaballah, H., Kanai, M., Cheng, E.H., Judkins, A.R. and Pawel, B., 2014. Asparagine plays a critical role in regulating cellular adaptation to glutamine depletion. *Molecular cell*, 56(2), pp.205-218.

Zhang, S., Xie, Y., Zhang, C., Bie, X., Zhao, H., Lu, F. and Lu, Z., 2015. Biochemical characterization of a novel L-asparaginase from *Bacillus megaterium* H-1 and its application in French fries. *Food Research International*, 77, pp.527-533.

Zuo, S., Zhang, T., Jiang, B. and Mu, W., 2015. Reduction of acrylamide level through blanching with treatment by an extremely thermostable L-asparaginase during French fries processing. *Extremophiles*, 19(4), pp.841-851.

Zyzak, D.V., Sanders, R.A., Stojanovic, M., Tallmadge, D.H., Eberhart, B.L., Ewald, D.K., Gruber, D.C., Morsch, T.R., Strothers, M.A., Rizzi, G.P. and Villagran, M.D., 2003. Acrylamide formation mechanism in heated foods. *Journal of agricultural and food chemistry*, 51(16), pp.4782-4787.

LIST OF PUBLICATIONS

Sharma, D. and Mishra, A., 2023. Anti-leukemic potential of a novel L-asparaginase preparation from *Bacillus indicus*: bench-scale production, purification and therapeutic application. *3 Biotech*, 13(1), pp.1-14.

<https://doi.org/10.1007/s13205-022-03440-8>

Sharma, D. and Mishra, A., 2022. L-asparaginase production in solid-state fermentation using *Aspergillus niger*: process modeling by artificial neural network approach. *Preparative Biochemistry & Biotechnology*, 52(5), pp.549-560.

<https://doi.org/10.1080/10826068.2021.1972426>

Sharma, D., Singh, K., Singh, K. and Mishra, A., 2019. Insights into the microbial L-asparaginases: from production to practical applications. *Current Protein and Peptide Science*, 20(5), pp.452-464.

<https://dx.doi.org/10.2174/1389203720666181114111035>

Sharma, D., Saini, R. and Mishra, A., 2022. Natural phytochemicals physalin D, withaferin a and withanone target L-asparaginase of *Mycobacterium tuberculosis*: a molecular dynamics study. *Journal of Biomolecular Structure and Dynamics*, pp.1-15.

<https://doi.org/10.1080/07391102.2022.2036239>

Sharma, D., & Mishra, A. Synergistic effects of ternary mixture formulation and process parameters optimization in a sequential approach for enhanced L-asparaginase production using agro-industrial wastes. *Environmental Science and Pollution research* (Under review)