



ST. XAVIER'S COLLEGE (AUTONOMOUS)
PALAYAMKOTTAI - 627 002
(Recognized as "College with Potential for Excellence" by UGC &
Accredited by NAAC at A++ Grade with a CGPA of 3.66 out of 4)



ANNUAL REPORT 2022-2023

Xavier Research Foundation

Xavier Research Foundation (XRF) is one of the innovative initiatives of St Xavier's College management to promote interdisciplinary research, publication and extension activities. It is a research center of eminence to promote cutting edge pursuits to solve peoples' problems and to protect the environment. Director, three Scientists, two Emeritus Scientists, Six project fellows and research scholars and a technical assistant are working full time at XRF. XRF is recognized by M.S. University as Interdisciplinary research centre. (MSU/RES/R4/IRC/2021)

Currently XRF is running four major and one minor project related to Agro Tourism, Organic Agriculture, Environmental Awareness and Promoting herbal gardens in schools in Tirunelveli District. We are also working on indigenous traditional herbal medicines to cure some diseases based on rigorous scientific evaluation. XRF has developed some natural products to control insects and pests.

XRF has published 34 research papers, 4 General articles and 14 popular articles. The publication of the 'Flora of Tirunelveli hills', a dream project of Fr V.S Manickam S.J., is completed. XRF has published 5 Books. படைப்பு அனைத்தும் உமதே!, *Flor of Tirunelveli Hills*, Gamopetalae, Vol II. Text, *Flora of Tirunelveli Hills*, Gamopetalae, Vol II. Figures, *Flora of Tirunelveli Hills*, Monochlamydae, Vol. III Text, *Flora of Tirunelveli Hills*, Monochlamydae, Vol. III Figures

XRF is helping many students to refer the SXC herbarium and to utilize its facilities for their research. Many MSC students are doing their project works. Digitalization of herbarium is in progress.

TABLE.8.a. PAPERS PUBLISHED IN JOURNALS (2022-2023)

S. NO	Name of the Teacher	Name of the Department	Title of the Paper	Name of the Journal	Volume No/ Issue No/ Page No / Year	ISSN No. / e-ISSN No.	Cited in Web of Science / Scopus Indexed/ UGC Approved / Not Found in UGC-CARE List	National / International	Impact Factor
1.	Maharajan, T., Ceasar, S.A., Krishna, T.P.A. and Ignacimuthu, S.,	Xavier Research Foundation	Management of phosphorus nutrient amid climate change for sustainable agriculture.	Journal of Environmental Quality.	50(6)/p p.1303-1324/ 2021	ISSN:15 37-2537	Scopus	International	3.866
2.	Maharajan, T., Krishna, T.A., Kiriyanthan, R.M., Ignacimuthu, S. and Ceasar, S.A.,	Xavier Research Foundation	Improving abiotic stress tolerance in sorghum: focus on the nutrient transporters and marker-assisted breeding.	Planta	254, pp.1-16. 2021.	ISSN 14322048, 00320935	Scopus	International	4.689
3.	Hillary, V.E., Ignacimuthu, S. and Ceasar, S.A.,	Xavier Research Foundation	Potential of CRISPR/Cas system in the diagnosis of COVID-19 infection.	Expert review of molecular diagnostics.	21(11), pp.1179-1189. 2021.	ISSN 1473-7159, e-ISSN 1744-8352	Scopus	International	5.670
4.	Paulraj, M. G., & Ignacimuthu, S.	Xavier Research Foundation	Plant Volatile Oils and	Quality of Life	22(1-2)/ 65-	DOI: 10.7251/	EBSCO indexed	International	

			Compounds as Ecofriendly Mosquito Control Products Review on Recent Developments QUALITY OF LIFE.		79/2022	QOL2201065P UDC: 635.7:547.913]:595.771			
5.	Saravana Kumar, P., Li, Y., He, M., Yuvaraj, P., Balakrishna, K., & Ignacimuthu, S.	Xavier Research Foundation	Rapid Isolation of Ricinine, a Pyridone Alkaloid from <i>Ricinus communis</i> (L.) with Antifungal Properties.	Journal of Biologically Active Products from Nature.	12(1), 33-41. 2022	ISSN 2231-1874	Scopus	International	
6.	Kumar, S.N., Buvanavaragurathan, K., Govindarajan, R., Rajan, S., Balakrishna, K., Shirota, O., Radha, A., Pandikumar, P. and Ignacimuthu, S.,	Xavier Research Foundation	Hepatoprotective Constituents of <i>Macrocybe gigantea</i> (Agaricomycetes) from India.	International Journal of Medicinal Mushrooms.	24(1). 2022.	ISSN 15219437	Scopus	International	1.921
7.	Louis, M.L.M., Rani, V.P., Krishnan, P., Reegan, A.D., Balakrishna, K., Ignacimuthu, S., Packiam, S.M., Maheswaran, R. and Shirota, O.,	Xavier Research Foundation	Mosquito larvicidal activity of compounds from unripe fruit peel of avocado (<i>Persea americana</i> Mill.).	Applied Biochemistry and Biotechnology.	2022. pp.1-12.	ISSN 2732289	Scopus	International	3.094

8.	Irudayaraj, S.S., Jincy, J., Sunil, C., Duraipandiyan, V., Ignacimuthu, S. , Chandramohan, G. and Packiam, S.M.,	Xavier Research Foundation	Antidiabetic with antilipidemic and antioxidant effects of flindersine by enhanced glucose uptake through GLUT4 translocation and PPAR γ agonism in type 2 diabetic rats.	Journal of Ethno pharmacology,	2022. 285, p.1148 83.	ISSN 0378- 8741.	Scopus	International	5.195
9.	Stalin, A., Lin, D., Josephine Princy, J., Feng, Y., Xiang, H., Ignacimuthu, S. and Chen, Y.,	Xavier Research Foundation	Computational analysis of single nucleotide polymorphisms (SNPs) in PPAR gamma associated with obesity, diabetes and cancer.	Journal of Biomolecular Structure and Dynamics,	2022. 40(4), pp.184 3-1857.	ISSN 1538- 0254	Scopus	International	5.235
10.	Kumar, P.S., Nattudurai, G., Islam, V.I.H. and Ignacimuthu, S. ,	Xavier Research Foundation	The effects of some essential oils on <i>Alternaria alternata</i> , a post- harvest phyto- pathogenic fungus in wheat by disrupting ergosterol biosynthesis.	Phytoparasitica ,	2022. 50(2), pp.513- 525.	ISSN 3342123	Scopus	International	1.809
11.	Kumar, S.N., Darvin, S.S., Toppo,	Xavier Research Foundation	Ameliorative effect of	Biocatalysis and	2022. 41,	ISSN 1878-	Scopus	International	

	E., Porchezhian, V., Pandikumar, P., Paulraj, M.G. and Ignacimuthu, S.		mangiferin on high fat diet-Diethylnitrosamine induced non-alcoholic steatohepatitis rats.	Agricultural Biotechnology,	p.1023 12.	8181.			
12.	Buvanesvaragurunathan, K., Ganesh, J., Kumar, S.N., Porchezhiyan, V., Radha, A., Azhahianambi, P., Pandikumar, P. and Ignacimuthu, S.,	Xavier Research Foundation	In vitro growth inhibitory effect of selected 18 β -glycyrrhetic acid esters on <i>Theileria annulata</i> .	Experimental Parasitology	2022., 236, p.1082 58	ISSN 0014- 4894.	Scopus	International	2.132
13.	Maharajan, T., Ajeesh Krishna, T.P., Ignacimuthu, S. and Ceasar, S.A.,	Xavier Research Foundation	Finger Millet Genome Analysis and Nutrient Transport. In The Finger Millet Genome	Cham: Springer International Publishing.	2022. (pp. 181- 199).		Scopus	International	
14.	Ramakrishnan, M., Arivalagan, J., Satish, L., Mohan, M., Christyraj, J.R.S.S., Chandran, S.A., Ju, H.J., Ramesh, T., Ignacimuthu, S. and Kalishwaralal, K.,	Xavier Research Foundation	Selenium's role in ferroptosis and biomass production.	Chemosphere	2022. p.1355 31.	ISSN 0045- 6535.	Scopus	International	8.943
15.	Stalin, A., Reegan, A.D., Gandhi, M.R., Saravanan, R.R.,	Xavier Research Foundation	Mosquitocidal efficacy of embelin and its	Computers in Biology and Medicine	., 2022. 146, p.1055	ISSN 0010- 4825.	Scopus	International	6.698

	Balakrishna, K., Hesham, A.E.L., Ignacimuthu, S. and Zhang, Y		derivatives against Aedes aegypti L. and Culex quinquefasciatus Say.(Diptera: Culicidae) and computational analysis of acetylcholinesterase 1 (AChE1) inhibition.		35.				
16.	Maharajan, T., Ceasar, S.A., Krishna, T.P.A. and Ignacimuthu, S.,	Xavier Research Foundation	Mining genes and markers across minor millets using comparative genomics approaches. In Omics of Climate Resilient Small Millets	Singapore: Springer Nature Singapore.	2022. (pp. 185- 203).		Scopus	International	
17.	Krishna, T.P.A., Maharajan, T., Ignacimuthu, S. and Ceasar, S.A.,	Xavier Research Foundation	Improving the Nutrient-Use Efficiency in Millets by Genomics Approaches. In Omics of Climate Resilient Small Millets	Singapore: Springer Nature Singapore.	2022. (pp. 205- 220).		Scopus	International	
18.	Vimalanathan, B., Vijaya, J.J., Mary, B.C.J.,	Xavier Research Foundation	The Anticancer Efficacy of Thiourea-	Journal of Functional Biomaterials,	2022. 13(3), p.130.	ISSN 2079- 4983	Scopus	International	4.901

	Ignacimuthu, S., Daniel, M., Jayavel, R., Bououdina, M. and Bellucci, S.,		Mediated Reduced Graphene Oxide Nanosheets against Human Colon Cancer Cells (HT-29).						
19.	Vimalanathan, B., Vijaya, J., Selvamani, P., Ignacimuthu, S., Daniel, M., Bououdina, M. and Ramasamy, J.,	Xavier Research Foundation	Thiourea- Mediated Reduced Graphene Oxide Nanosheets, Their Cytotoxic Impacts on Human Prostate Cancer Cells, and Their Antibacterial Effects against E. coli Mastitis.	Journal of Nanomaterials.	2022.	ISSN 1687- 4129	Scopus	International	3.791
20.	Saravana Kumar, P., Reegan, A.D., Rajakumari, K., Asharaja, A.C., Balakrishna, K. and Ignacimuthu, S.,	Xavier Research Foundation	Bio-efficacy of Soil Actinomycetes and an Isolated Molecule 1, 2- Benzenedicarbox ylic Acid from Nonomurea sp. Against Culex quinquefasciatus Say and Aedes aegypti L. Mosquitoes (Diptera:	Applied Biochemistry and Biotechnology,	2022. pp.1- 18.	.ISSN 2732289	Scopus	International	3.094

			Culicidae).						
21.	Ajeesh Krishna, T.P., Maharajan, T., Ignacimuthu, S. and Antony Ceasar, S.,	Xavier Research Foundation	Functional, Structural, and Transport Aspects of ZIP in Plants. In Plant Metal and Metalloid Transporters	Singapore: Springer Nature Singapore.	2022. (pp. 207-226).		Scopus	International	
22.	Vimalanathan, B., John, J.V., Ignacimuthu, S. , Daniel, M. and Ramasamy, J.,	Xavier Research Foundation	Docking studies and thiourea-mediated reduced graphene oxide nanosheets' larvicidal efficacy against <i>Culexquinquefasciatus</i> .	Experimental Parasitology,	2022. 242, p.1083-91.	ISSN 0014-4894.	Scopus	International	2.132
23.	Stalin, A., Lin, D., Senthamarai Kannan, B., Feng, Y., Wang, Y., Zhao, W., Ignacimuthu, S. , Wei, D.Q. and Chen, Y.,	Xavier Research Foundation	An in-silico approach to identify the potential hot spots in SARS-CoV-2 spike RBD to block the interaction with ACE2 receptor.	Journal of Biomolecular Structure and Dynamics,	2022. 40(16), pp.740-8-7423.	ISSN 1538-0254	Scopus	International	5.235
24.	Shah, R.A., Riyaz, M., Ignacimuthu, S. and Sivasankaran, K.,	Xavier Research Foundation	Characterization of four mitochondrial genomes from superfamilies Noctuoidea and Hyblaeoidea with	Scientific Reports,	2022. 12(1), p.1892-6.	ISSN 2045-2322	Scopus	International	4.996

			their phylogenetic implications.						
25.	Ganesan, P. and Ignacimuthu, S.,	Xavier Research Foundation	Metabolites from Actinobacteria for Mosquito Control. In Actinobacteria-Diversity, Applications and Medical Aspects.	IntechOpen.	2022.	ISSN 0192303X	Scopus	International	
26.	William Raja, T.R., Duraipandiyar, V., Ignacimuthu, S., Janakiraman, U. and Packiam, S.M.,	Xavier Research Foundation	Role of Polyphenols in Alleviating Alzheimer's Disease: A Review.	Current Medicinal Chemistry.	2023.	ISSN 1875-533X	Scopus	International	5.046
27.	Cesar, S.A., Maharajan, T., Krishna, T.A. and Ignacimuthu, S.,	Xavier Research Foundation	. Finger millet (Eleusine coracana (L.) Gaertn). In Neglected and Underutilized Crops	Academic Press.	2023 (pp. 137-149).		Scopus	International	
28.	Ganesan, P., Samuel, R., Mutheeswaran, S., Pandikumar, P., Reegan, A.D., Aremu, A.O. and Ignacimuthu, S.,	Xavier Research Foundation	Phytocompounds for mosquito larvicidal activity and their modes of action: A review.	South African Journal of Botany,	2023. 152, pp.19-49.	ISSN 0254-6299.	Scopus	International	3.111
29.	William Raja, T.R., Duraipandiyar, V., Ignacimuthu, S.,	Xavier Research Foundation	Role of Polyphenols in Alleviating	Current Medicinal Chemistry.	2023.	ISSN 0929-8673	Scopus	International	5.046

	Janakiraman, U. and Packiam, S.M.,		Alzheimer's Disease: A Review.						
30.	Riyaz, M., Shah, R.A., Ignacimuthu, S. and Sivasankaran, K.,	Xavier Research Foundation	Phylogenomics including the newly sequenced mitogenomes of two moths (Noctuoidea, Erebiidae) reveals <i>Ischyja manlia</i> (incertae sedis) as a member of subfamily Erebiinae.	Genetica,	pp.1-14. 2023.	ISSN: 0016-6707.	Scopus	International	1.633
31.	Samuel, R., Pathalam, G., Babu, V., Ragavendran, K., Subramanian, M., Stalin, A., Sanmugapriya, N.K., Palaniswamy, S. and Ignacimuthu, S.,	Xavier Research Foundation	Biocontrol efficacy of apigenin isolated from <i>Anisomeles indica</i> (L.) Kuntze against immature stages of <i>Culex quinquefasciatus</i> (Say, 1823) and its in silico studies.	Biocatalysis and Agricultural Biotechnology,	2023. p.1026-37.	ISSN 1878-8181.	Scopus	International	
32.	Maharajan, T., Ajeesh Krishna, T.P., Rakkammal, K., Ramakrishnan, M., Ceasar, S.A., Ramesh, M. and Ignacimuthu, S.,	Xavier Research Foundation	Identification of QTL Associated with Agro-Morphological and Phosphorus Content Traits in Finger Millet	Agriculture,	2023. 13(2), p.262.	ISSN 2077-0472	Scopus	International	3.408

			under Differential Phosphorus Supply via Linkage Mapping.						
33.	Maharajan, T., Krishna, T. P. A., Ceasar, S. A., & Ignacimuthu, S.	Xavier Research Foundation	Zinc supply influenced the growth, yield, zinc content, and expression of ZIP family transporters in sorghum.	Planta,	(2023). 257(2), 44.	ISSN. 0032093 5, 1432204 8	Scopus	International	4.689
34.	Antony Ceasar S. and Ignacimuthu S.,	Xavier Research Foundation	CRISPR/Cas Genome editing in plants: Dawn of Agrobacterium tranfromation for recalcitrant and trangene-free plants for future crop breeding	Plant Physiology and Biochemistry	2023., 196: 724- 730.	ISSN 0981- 9428.	Scopus	International	5.437

PAPERS PUBLISHED AS GENERAL ARTICLES

S. NO	Name of the Teacher	Name of the Department	Title of the Paper	Name of the Journal	Volume No/ Issue No/ Page No / Year	IS S N No . / e- IS S N No .	Cited in Web of Science / Scopus Indexed /UGC Approved / Not Found in UGC-CARE List	National / International	Impact Factor
1.	S. Ignacimuthu,	Xavier Research Foundation	Spread of Science and Scientific Temper,	Living Faith in	July 2022, 1-2.	-	-	National	-
2.	S. Ignacimuthu,	Xavier Research Foundation	The Catholic Church and Higher Education.	The New Leader	135(12): 15-16. (June, 16-30, 2022).	-	-	National	-
3.	S. Ignacimuthu,	Xavier Research Foundation	Scientific Research has been my Passion. https://inimagazine.org	INI An Inigo innovative	, October-December, 2022.	-	-	National	-
4.	S. Ignacimuthu,	Xavier Research Foundation	International Tear of Millets 2023.	The New Leader	, 136(1): 10-13. January 1-15, 2023.	-	-	National	-

PAPERS PUBLISHED AS POPULAR ARTICLES

S. NO	Name of the Teacher	Name of the Department	Title of the Paper	Name of the Journal	Volume No/ Issue No/ Page No / Year	ISSN No. / e-ISSN No.	Cited in Web of Science / Scopus Indexed / UGC Approved / Not Found in UGC-CARE List	National / International	Impact Factor
1.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 7. Pearl Millet.	The New Leader	135(2): 29. (Jan. 16-31, 2022).	-	-	National	-
2.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 8. Finger Millet.	The New Leader	135(4): 29. (Feb. 16-28, 2022).	-	-	National	-
3.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 9. Kodo Millet.	The New Leader	135(6): 29. (Mar. 16-31, 2022).	-	-	National	-
4.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 10. Barnyard Millet; 11. Proso Millet. The New Leader,	The New Leader	135(8): 29. (Apr. 16-30, 2022).	-	-	National	-
5.	P. Pandikumar and	Xavier	Food and their	The New	135(10): 29.	-	-	National	-

	S. Ignacimuthu	Research Foundation	medicinal values. 12. Foxtail Millet; 13. Little Millet.,	Leader		(May, 16-31, 2022).				
6.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal 14. Buckwheat; 15. Chenopod; 16. Amaranth. The New Leader,	The New Leader		135(12): 29. (June, 16-30, 2022).	-	-	National	-
7.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values 17. Pigeon Pea	The New Leader		135(14): 29. (July, 16-31, 2022).	-	-	National	-
8.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 18. Chickpea.	The New Leader		135(16): 29. (August, 16-31, 2022).	-	-	National	-
9.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 19. Green gram.	The New Leader		135(18): 29. (September, 16-30, 2022).	-	-	National	-
10.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 20. Black gram. The New Leader,	The New Leader		135(20): 29. (October, 16-31, 2022).	-	-	National	-
11.	P. Pandikumar and S. Ignacimuthu	Xavier Research	Food and their medicinal	The New Leader		135(22): 29. (November,	-	-	National	-

		Foundation	values. 21. Soybean.		16-30, 2022).				
12.	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 22. Garden Pea.	The New Leader	136(2): 29. (January, 16-31, 2023).	-	-	National	-
13.	பா. கணேசன் மற்றும் அருள் முனைவர் ச. இஞ்ஞாசிமுத்து, சே.ச.	Xavier Research Foundation	பூச்சிகளும் இறைவனின் படைபே! 1. தேனீ	சேசுநாதரு டைய திரு இருதயத் தூதன்	சனவரி 17-18	-	-	National	-
14.	பா.கணேசன் மற்றும் அருள் முனைவர் ச. இஞ்ஞாசிமுத்து, சே.ச.	Xavier Research Foundation	பூச்சிகளும் இறைவனின் படைபே! 2. அந்துப்பூச்சிகள்	சேசுநாதரு டைய திரு இருதயத் தூதன்	பிப்ரவரி1 5-16	-	-	National	-

TABLE 9 - BOOKS / BOOK CHAPTERS PUBLISHED (2022-2023)

S. No	Name of Teacher	Department	Title of the Books / Proceedings	Place, Publisher, Year, Page No.	National / International	ISSN / ISBN No.
1.	அருள் முனைவர் ச. இஞ்ஞாசிமுத்து , சே.ச.	Xavier Research Foundation	படைப்பு அனைத்தும் உமதே!	நம் வாழ்வு வெளியீடு/ சென்னை/ 2022/ பக். 1-336.	National	ISBN : 978-81-948397-6-7
2.	V.S. Manickam, V. Sundaresan, V. Chelladurai and S. Ignacimuthu.	Xavier Research Foundation	Flora of Tirunelveli Hills, Gamopetalae, Vol II. Text	Bishen Singh Mahendra Pal Singh, Dehra Dun, 2022 P.No: 1-409;	National	ISBN: 978-93-93628-43-5
3.	V.S. Manickam, V. Sundaresan, V. Chelladurai and S. Ignacimuthu.	Xavier Research Foundation	Flora of Tirunelveli Hills, Gamopetalae, Vol II. Figures	Bishen Singh Mahendra Pal Singh, Dehra Dun, 2022 P.No: 1-538.	National	ISBN: 978-9393-93628-42-5
4.	V.S. Manickam, G. Jeya Jothi and S. Ignacimuthu,	Xavier Research Foundation	Flora of Tirunelveli Hills, Monochlamydae, Vol. III Text	Bishen Singh Mahendra Pal Singh, Dehra Dun, 2022 P.No: 1-224	National	ISBN: 978-81-943323-6-7
5.	V.S. Manickam, G. Jeya Jothi and S. Ignacimuthu,	Xavier Research Foundation	Flora of Tirunelveli Hills, Monochlamydae, Vol. III Figures	Bishen Singh Mahendra Pal Singh, Dehra Dun, 2022 P.No: 1-268	National	ISBN: 978-81-943323-7-4