ANNUAL REPORT 2021-2022

Xavier Research Foundation

(April 2021- April 2022)

Xavier Research Foundation (XRF) is one of the novel 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. Four Scientists, two Emeritus Scientists, Four project fellows and research scholars and a technician 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 three major projects related to Agro Tourism, Organic Agriculture and Promoting herbal gardens in schools in Tirunelveli District. XRF has developed some natural products to control insects and pests.

XRF has submitted 27 complete Gene sequences to Genbank. XRF has published 29 papers, 2 Granted Patents and three books.

XRF is helping many students to refer to the SXC herbarium and to utilize its facilities for their research. Digitalization of herbarium is in progress. The publication of the 'Flora of Tirunelveli hills', a dream project of Fr V.S Manickam, S.J., is being continued. Volumes II and III are in press. Volume IV is under review. The first Volume was already published in 2008 when Fr Manickam was alive.

TABLE.8.a. PAPERS PUBLISHED IN JOURNALS (2021-2022)

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	Khalith SBM, Anirud R, Ramalingam R, Karuppannan SK, Dowlath JH, Pandion K, Ravindran B, Chang SW, Ovi D, Arasu MV, Ignacimuthu S, Al-Dhabi NA, Chandrasekaran M, Arunachalam KD.	Xavier Research Foundation	Synthesis and characterization of magnetite carbon nanocomposite from agro waste as chromium adsorbent for effluent treatment.	*Environmental Research*	Volume 202, , 111669	https://doi.org/10.1016/j.envres.2021.111669 ISSN: 0013-9351	Scopus	International	IF: 6.498
2	Maharajan T, Ceasar SA, Krishna TP, and Ignacimuthu S.	Xavier Research Foundation	Finger Millet [Eleusine coracana (L.) Gaertn: An Orphan Crop With a Potential to Alleviate the Calcium Deficiency in the	*Frontiers in Sustainable Food Systems*.	Volume 5, 68447 2021	https://doi.org/10.3389/fsufs.2021.684447 ISSN 2571581X	Scopus	International	IF: 3.95

			Semi-arid Tropics of Asia and Africa.						
3	Riyaz M, Mathew NP, Shiekh T, Ignacimuthu S, Sivasankaran S.	Xavier Research Foundation	First record of the Afghan Poplar Hawkmoth Laothoe Sphingidae: Smerinthinae) from India: a notable range extension for the genus.	*Journal of Threatened Taxa*,	Volume 13(7): 18943–18946.	ISSN 0974-7907	Scopus	National	IF: 0.50
4	Reeganan AD, Kumar PS, Chitra A, Sithi D, Balakrishna K, Ignacimuthu S.	Xavier Research Foundation	Larvicidal and ovicidal activities of phenyl acetic acid isolated from *Streptomyces collinus* against *Culex quinquefasciatus* Say and Aedes aegypti L. (Diptera: Culicidae).	*Experimental Parasitology*.	Volumes 226–227, July–, 108120	10.1016/j.exppara.2021.108120 ISSN 0014-4894.	Scopus	International	IF: 2.011
5	Toppo E, Al-Dhabi NA, Sankar C, Kumar SN, Buvanesvaragurunathan K, Darvin SS, Stalin A, Balakrishna K, Ceasar SA,	Xavier Research Foundation	Hepatoprotective effect of selected isoandrographolide derivatives on steatotic HepG2 cells and High Fat Diet fed rats.	*European Journal of Pharmacology*	899, 174056.	ISSN 0014-2999.	Scopus	International	IF: 4.43

	Pandikumar P, Ignacimuthu S, Sivasankaran K, Agastian P.								
6	Balachandran C, Al-Dhabi NA, Duraipandiyan V, Ignacimuthu S. 2021.	Xavier Research Foundation	Bluemomycin, a new naphthoquinone derivative from Streptomyces sp. with antimicrobial and cytotoxic properties.	*Journal Biotechnology Letters*.	43(5), 1005-1018.	2214-7853 ISSN: 15736776	Scopus	International	IF: 1.97
7	Sunil C, Irudayaraj SS, Duraipandiyan V, Alrashood ST, Alharbi SA, Ignacimuthu S.	Xavier Research Foundation	Friedelin exhibits antidiabetic effect in diabetic rats via modulation of glucose metabolism in liver and muscle.	*Journal of Ethnopharmacology*	268 113659.	ISSN 0378-8741.	Scopus	International	IF: 4.27
8	Stalin A, Lin D, Balakrishna K, Kannan S, Feng Y, Wang Y, Zhao W, Ignacimuthu S, Wei D-Q, 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	. 1-16.	ISSN 1538-0254	Scopus	International	IF: 3.39
9	David HA, Ramakrishnan M, Maharajan T, Kannan B, Babu A, Daniel M, Agastian	Xavier Research Foundation	Mining QTL and genes for root traits and biochemical parameters under	Journal Biocatalysis and Agricultural Biotechnology	32. 101935	ISSN 1878818 1	Scopus	International	IF: 3.9

	P, Caesar SA, Ignacimuthu S.		vegetative drought in South Indian genotypes of finger millet (Eleusine coracana (L.) Gaertn)...						
10	Pavunraj M, Baskar K, Arokiyaraj S, Ignacimuthu S, Alqarawi A, Hashem	Xavier Research Foundation	A. Karyomorphological effects of two new oil formulations on *Helicoverpa armigera* (Hübner)(Lepidoptera: Noctuidae).	Saudi Journal of Biological Sciences.	28(3) 1514-1518.	ISSN 1319-562X.	Scopus	International	IF: 2.8
11	Kumar PS, Paulraj MG, Ignacimuthu S, Al-Dhabi NA, Sukumaran K.	Xavier Research Foundation	In vitro antagonistic activity of soil *Streptomyces collinus* Dpr20 against bacterial pathogens.	Journal of Microbiology, Biotechnology and Food Sciences.	317-324.	ISSN 1338-5178	Scopus	International	IF: 0.4
12	P. Saravana Kumar, G. Nattudurai, V.I. Hairul Islam and S. Ignacimuthu,	Xavier Research Foundation	The effects of some essential oils on *Alternaria alternata*, a post-harvest phytopathogenic fungus in wheat by disrupting egosterol biosynthesis.	Phytoparasitica:	doi.org/10.1007/s12600-021-00979-4	ISSN 3342123	Scopus	International	IF: 1.32

13	V. Edwin Hilary, S. Ignacimuthu and S. Antony Ceasar, 2021. Potential of CRISPR/Cas system I n the diagnosis of COVID-19 infection.			Expert Review of Molecular Diagnostics,	doi.org/ 10.1080 /147371 59.2021. 1970535 .	ISSN 1473-7159	Scopus	International	IF: 5.2
14	S. Ignacimuthu		Book Review, Annual Review of Entomology 2021.	Current Science,	121: 846-847.	ISSN 0011-3891	Scopus	National	IF: 1.1
15	T. Maharajan, . Antony Ceasar, T.P. Ajeesh Krishna and S. Ignacimuthu,		Manageent of Phosphorous nutrient amidst climate change for sustainable agriculture	Journal of Environmental Quality,	DOI 10.1002 /jeq2.20 292.	ISSN:15 37-2537	Scopus	International	IF: 2.14
16	Krishna TP, Maharajan T, Ignacimuthu S, Ceasar SA..		Genomic-Assisted Breeding in Finger Millet (Eleusine Coracana (L.) Gaertn.) for Abiotic Stress Tolerance. In: Cole, C. (eds). Genome designing for abiotic stress resistant cereal crops.	Springer, Cham.	doi.org/ 10.1007 /978-3-030-75875-2_8.	ISSN 2193-1801	Scopus	International	
17	Riyaz M, Ignacimuthu S, Shah RA, Sivasankaran K,		Ethnobotany of the Himalayas-Kashmir, India.	Springer, Cham.	P. 27-45.	ISSN 2193-1801	Scopus	International	

	Pandikumar		In: Ethnobiology of Mountain Communities in Asia.						

PAPERS PUBLISHED IN GENERAL

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	S. Ignacimuthu,	Xavier Research Foundation	Impact making Initiatives of Jesuits in Higher education in India, In: Joan Dias, Savio Abreu, S.J., and Keith D'Souza, S.J. (Eds), Jesuit Initiatives in Indian Higher Education, Heras Institute of Indian History and Culture,	Mumbai & Christian World Imprints, Delhi,	xv-xxvi. 2021	-	-	National	-
2	S. Ignacimuthu,	Xavier Research Foundation	Post-Restorative Initiatives in Higher Education:	Mumbai & Christian World	83-95. 2021	-	-	National	-

			Madurai Mission, In: Joan Dias, Savio Abreu, S.J., and Keith D'Souza, S.J. (Eds), Jesuit Initiatives in Indian Higher Education, Heras Institute of Indian History and Culture, Mumbai & Christian World Imprints, Delhi, pp.	Imprints, Delhi,					

PAPERS PUBLISHED IN 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	S. Ignacimuthu,	Xavier Research Foundation	Science for People's Welfare. Pax Lumina,		Vol. 1 (5): P. 56-58	-	-	National	-
2	S. Ignacimuthu,	Xavier Research Foundation	A plea for passion and hard work: An interview with Dr S. Ignacimuthu,S.J. AUC:	Asain Journal of Religious Studies,	Doi:10.5281/zenodo.4319506 . Jan-Feb. 2021, Vol 66/1	-	-	National	-
3	S. Ignacimuthu	Xavier Research Foundation	Award for a Jackfruit Company.	*The New Leader*,	Vol.134, No.3. P.31	-	-	National	-
4	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 1. Wheat.	*The New Leader*,	2021. 134(12): 29. (June 16-30, 2021).	-	-	National	-
5	S. Ignacimuthu	Xavier Research Foundation	. Graduation day address (12-3-2021).	Research and Reflections on Education,	19(2):47.	-	-	National	-
6	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 2. Rice.	*The New Leader*,	134(18): 29. (July 16-31, 2021).			National	

7	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 3. Oats.	*The New Leader*,	134(18): 29. (Aug. 16-31, 2021).			National	
8	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 4. Barley.	*The New Leader*,	134(18): 29. (Sept 16-30, 2021).			National	
9	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 5. Maize.	*The New Leader*,	134(20): 29. (Oct. 16-31, 2021).			National	
10	P. Pandikumar and S. Ignacimuthu	Xavier Research Foundation	Food and their medicinal values. 6. Sorghum.	*The New Leader*,	134(22): 29. (Nov. 16-30, 2021).			National	

TABLE 9 - BOOKS / BOOK CHAPTERS PUBLISHED (2021-2022)

S. No	Name of Teacher	Department	Title of the Books / Proceedings	Place, Publisher, Year, Page No.	National / International	ISSN / ISBN No.
1	S. Ignacimuthu,	Xavier Research Foundation	Contribution of Jesuits to Science in India	. 1-456 Gujarat Sahitya Prakash PB#70, Anand 388001 Gujarat,	National	ISBN: 978-81-953168-3-0
2	**முனைவர் ச. இஞ்ஞாசிமுத்து சே.ச.**	Xavier Research Foundation	**படிப்பில் சிறந்திட**	**வைகறை பதிப்பகம், திண்டுக்கல்**, pp: 1- 56,	National	ISBN: 978-81-953640-3-9
3	**முனைவர் ச. இஞ்ஞாசிமுத்து, சே.ச. அ. மாரியப்பன், கா. ராகவேந்திரன்,**	Xavier Research Foundation	**இயற்கை சார்ந்த விவசாயம்,**	**B. இரத்தின நாயகர் அண்ட் சன்ஸ். 1-123. சென்னை.**	National	ISBN: 978-81-9325-88-1-1

TABLE 9. A – GENE SEQUENCES SUBMITTED TO GEN BANK

S.NO	GENE SEQUENCES	GENBANK ACCESSION NO
1	Muzafar Riyaz, Rauf A. Shah, Sivasankaran, K and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of *Lygephila dorsigera* Walker, 1865 ERILMC-094.	MW648384
2	Sivasankaran, K Muzafar Riyaz, Rauf A. Shah, and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of *Oraesia emarginata* (Fabricius, 1794) ERILMC-051	MW648382
3	Rauf A. Shah, Muzafar Riyaz, Sivasankaran, K and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of *Westermannia superba* Hubner, 1823 ERILMC-196	MW648383
4	Ignacimuthu, S., Sivasankaran, K., Rauf, S. A. and Muzafar, R. 2021. Complete mitochondrial genome sequence of Ischyja manlia Cramer, 1776 ERILMC-089	MW664367
5	Sivasankaran, K., Rauf, S. A., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Rusicada privata (Walker, 1865) ERILMC-101	MW664368
6	Rauf, S. A., Muzafar, R., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Blenina donans Walker, 1858 ERILMC-140	MW678841
7	Muzafar Riyaz, Rauf A. Shah, Sivasankaran, K and Ignacimuthu, S. 2020. Complete mitochondrial genome sequence of Eudocima salaminia Cramer, 1777 ERILMC-038	MW683337
8	Muzafar, R., Rauf, S. A., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Hypospila bolinoides Guenee 1852 ERILMC-075	MW691121
9	Sivasankaran, K., Muzafar, R., Rauf, S. A. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Artena dotata Fabricius, 1794 ERILMC- ERILMC-091	MW697902
10	Sivasankaran, K., Rauf, S. A., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Actinotia polyodon (Clerck, 1759) ERILMC-029	MW697903
11	Sivasankaran, K., Muzafar, R., Rauf, S. A. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Odontodes seranensis Prout, 1922 ERILMC-021	MW719565
12	Rauf, S. A., Muzafar, R., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Sphingomorpha chlorea Cramer, 1777 ERILMC-073	MW751990
13	Ignacimuthu, S., Sivasankaran, K., Muzafar, R. and Rauf, S. A. 2021. Complete mitochondrial genome sequence of Ercheia cyllaria Cramer, 1779 ERILMC-111	MW751989

14	Muzafar, R., Rauf, S. A., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Trigonodes hyppasia Cramer, 1779 ERILMC-122	MW751988.
15	Sivasankaran, K., Rauf, S. A., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Paectes cristatrix (Guenee, 1852) ERILMC-146	MW846303
16	Muzafar, R., Rauf, S. A., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Psimada quadripennis Walker, 1858 ERILMC-154	MW846304
17	Rauf, S. A., Sivasankaran, K., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Sympis rufibasis Guenee, 1852 ERILMC-121	MW846302
18	Sivasankaran, K., Ignacimuthu, S., Muzafar, R. and Shah, R. A. 2021. Complete mitochondrial genome sequence of Lacera noctilio (Fabricius, 1794) ERILMC-124	MW846301
19	Muzafar, R., Shah, R.A., Sivasankaran, K. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Ophiusa tirhaca (Cramer, 1777) ERILMC-099	MW865752
20	Rauf, S. A., Sivasankaran, K., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Oxyodes scrobiculata (Fabricius, 1775) ERILMC-068	MW865753
21	Sivasankaran, K., Rauf, S. A., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Hemichloridia euprepia Hampson, 1902 ERILMC-16	MW865754
22	Muzafar, R., Sivasankaran, K., Rauf, S. A. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Episparis tortuosalis Moore, 1867 ERILMC-082	MW879209
23	Rauf,S.A., Ignacimuthu,S., Sivasankaran,K. and Muzafar,R. 2021 Complete mitochondrial genome sequence of Corcobara angulipennis Moore, 1882 ERILMC-170	MW879210
24	Muzafar, R., Ignacimuthu, S., Sivasankaran, K. and Rauf, S. A. 2021. Complete mitochondrial genome sequence of Risoba obstructa Moore, 1881 ERILMC-170	MW879211
25	Sivasankaran, K., Rauf, S. A., Muzafar, R. and Ignacimuthu, S. 2021. Complete mitochondrial genome sequence of Hyblaea puera (Cramer, 1777) ERILMC-163	MW885970
26	Rauf, S. A., Muzafar, R., Sivasankaran, K. and Ignacimuthu, S. 2021 Complete mitochondrial genome sequence of Achaea serva (Fabricius 1775) ERILMC-053	MW899032
27	Muzafar, R., Ignacimuthu, S., Sivasankaran, K. and Rauf, S.A. 2021. Complete mitochondrial genome sequence of Mecodina praecipua (Walker, 1865) ERILMC-145	MW899033

TABLE 10 – MAJOR RESEARCH PROJECTS (2021-2022)

S. No	Name of the Teacher	Name of the Department	Title	Agency	Govt./ Non - Govt.	Amount (Rs.)	Grant Duration
1	Fr. Dr. S. Ignacimuthu, S.J.	Xavier Research Foundation	Promoting Organic farming practices to enhance livinghood of farmers in Tirunelveli district	Jesuitian Weltweit, Germany	Non- Govt	22,90,000/-	2019-2022
2	Fr. Dr. S. Ignacimuthu, S.J.	Xavier Research Foundation	Training Students in Organic Farming and Sustainable Agriculture and Promoting agro-Tourism in Tamil Nadu	Jesuit Mission, Switzerland	Non- Govt	99,00,000	2021-2024
3	Dr S Mutheeswaran	Xavier Research Foundation	Promoting Awareness And Scientific Knowledge On Medicinal Plants Among Higher Secondary School Children In Tirunelveli District Of Tamil Nadu"	National Medicinal Plants Board	Govt	10,92,000	2022-2025

TABLE 18 – PATENTS GRANTED (2021-2022)

S. No	Name of the Teacher & Department	Title	Agency	Date
1	Fr Dr S. Ignacimuthu, S.J	A Process For The Isolation Of A Novel Compound "Ignaciomycin" From *Streptomyces* Sp. Active Against	Indian Patent	Granted Application, Patent Number :388870 11/02/2022
2	Fr Dr S. Ignacimuthu, S.J	A Compound (4r, 5s)-4-Acetoxy-7-Tigloyloxy Carvotanacetone With Antifungal Properties	Indian Patent	Granted Application, Patent Number :390689 04/03/2022