Biodata of Dr. JOYKUMAR MEITEI LAISHRAM

Professor and DEAN

College of Agriculture

CENTRAL AGRICULTURAL UNIVERSITY, IMPHAL, MANIPUR

1.	Name	:	**JOYKUMAR MEITEI LAISHRAM,**
2.	Father's name	:	**(L) LAISHRAM MANAOBI**
3.	Date of Birth	:	1st March Nineteen hundred fifty six (01-03-1956)
4.	Postal Address	:	Dean, College of Agriculture, CAU, Imphal (Manipur) Pin: 795004 E-mail: jmlaishram@rediffmail.com Telephone: 0385 - 2410427
5.	Permanent/Present Add.	:	Keishamthong Irom Pukhri Mapal, Imphal, Manipur. House no. 84A. Pin - 795001. Telephone: 09862564889
7.	Nationality	:	Indian
8.	Marital status	:	Married
9.	Whether belong to SC/ST/PH/OBC- NA.		

10. Educational Qualification:

Exam passed	Board/ University	%age	Yr. of Passing	Subject
M.Sc.(Agri)	Tashkent Agricultural University, USSR	Distinction	1981	Plant. Breeding & Genetics (Integrated)
Ph.D.	Academy of Sciences Moscow. USSR		1985	Genetics

11. Professional Training if any details thereof :

He participated in the following professional training programmes :

i) "Technique of hybrid seed production in vegetables" held at II HR, Bangalore form 12th to 24th Dec, 1994.

ii) "Genetic conservation, Utilization, gene patenting and varietal registration" held at TNAU, Coimbatore from May 20-30, 1995.

iii) "DNA technologies - Forensic and other applications" held at CCMB, Hyderabad, from Feb. 25 to March 2, 1998.

iv) The 3rd International course on" Biotechnology in Agriculture- Plants and Micro organisms" held at Faculty of Food, Agriculture and Environment, **the Hebrew University of Jerusalem, Rehovot**, **Israel** from Dec. 29, 2000 to Feb. 15, 2001.Under FAO fellowship.

v) Training programme on "Molecular Markers Assisted Selection and related techniques " in Rice Genome Project Laboratory **at National Research Centre on Plant Biotechnology ,IARI, New Delhi** from 18th to 30th August 2003.

vi) Training Programme on "Biotechnology and Molecular Biology" held at **Ohio State Plant Biotechnology Centre, Ohio State University**, **Columbus, Ohio, USA** from Jan. 17 to April 17, 2004.USA Govt. Scholarship.

12. *Present Post:*

Professor & Dean
College of Agriculture,
Central Agricultural University, Imphal.

Dean (i/c)
College of Food Technology
Central Agricultural University, Imphal.

13. Total experiences (Years/months): 29 Years 1 month.

- **September 1986 to March 1990 (Assistant Professor)**
- **March 1990 to March 1999 (Associate Professor)**
- **March 1999 Jan 2014 (Professor)**
- **Jan 2014 till today (Dean, College of Agriculture) CAU, Imphal**
- **May 2014 till today (Dean i/c, College of Food Technology, CAU, Imphal.**

14. Details of work experience, if any.

After returning from Soviet Union in 1985 he joined as project officer in a project on "Ethno-botanical studies of plants of Tamenglong District of Manipur" under Prof. B.K. Royburman and Prof. Gangumei Kamei in Manipur University. He had collected and identified many plants used as herbal medicine and in many ethno-believes of Kabui Naga tribes of Tamenglong District of Manipur. He joint Manipur Agricultural College in 1986, at the beginning as Pool scientist of CSIR and later on as Assistant Professor in 1986. He started working with cotton in *Kharif* season and sunflower and mustard in *Rabi* season to identify best suitable varieties of these crops for wide cultivation in Manipur hills. He had identified cotton varieties MCU-10 and G-Cot-20 as the best adapted varieties having lint qualities as required by Spinning Mill of Manipur under low fertilization regime in the traditional Jhum (Slash & burnt) fields during 1987-89. From 1987 onwards he had conducted several trials for identification of suitable varieties of sunflower, rape and mustard as oilseed crops for introduction in *Rabi* season of Manipur valley. He had identified sunflower variety "Morden", rape variety TS-29 and mustard variety PR-8303 as the most suitable varieties of oil yielding crops for wide cultivation during *rabi* season in Manipur valley during 1988-90. He had developed a new variety of mustard from a cross IB-965 and RH-848 and released as CAU-M-I in 1995 and it has covered an area of about 2000 hectare under *rabi* oilseed crop in Manipur valley.

From 1991 onward he had successfully studied the traditional agro practices involved in jhum cultivation among the hill tribes of Manipur. Further he had developed an agro practice alternative to jhum cultivation and had extended in several villages of Chandel District of Manipur.

On establishment of Central Agricultural University and subsequent takeover of Manipur Agricultural College, his research objects have been undergone a positive change. He was given the task for development of horticulture to tap the potential of horticulture in NE India in general and Manipur in particular. A composite research programme on horticulture was initiated which includes.

Development of hybrid cucumber:

i) varieties of tomato resistant to bacterial wilt suitable for *Kharif* cultivation in open condition in Manipur and

ii) Development of floriculture as an industry in Manipur.

He has developed a new technology for early induction of female flower in local cucumber variety "Chingjin Thabi" by application of ethereal which makes synchronized production of both male and female flowers in female cucumber line. This enabled to develop hybrid cucumber for pickle purpose. The techniques have been adopted in production of hybrid cucumber in the College of Agriculture, CAU, Imphal.

1. Established a Hi-tech tissue culture laboratory and hardening facilities at the cost of Rs 19.37 lakhs funded by Department of Biotechnology, Govt. of India, New Delhi during 1996-97. Produced plantlets of various orchid hybrids for commercialization of orchid cut flower production in Manipur.

2. Established with the help of local NGOs, 22 orchid cut flower producing co-operative societies in and around Imphal for production of orchid cut flower for National Market with Nodal Marketing Co-operative Agency at Imphal which looks after the marketing at national cut flower markets at metro cities of the country.

3. Established an orchidarium at the College with total collection of 133 local and rare species of orchids.

Several biometrical techniques have been tried to develop hybrid tomato which out yields the existing F1 tomato hybrids available in the market. But till now no success has been achieved in this regard. Genetics of resistance to bacterial wilt in tomato have been work out and steady progress has been achieved in this regard. A tomato variety tolerant to bacterial wilt and which can withstand constant over-moisture in soil has been developed from cross between Arka Vikas and TWC-6. This variety is undergoing several multi-locational trials.

A hi-tech tissue culture laboratory was established under his guidance for the first time in the University with the financial help of the Department of Biotechnology, Government of India, New Delhi. He has taken up orchid as the main plant for development of floriculture in the NE- India. He has developed several protocols for commercial plantlet production of *Dendrobium, Cymbidium, Vanda, Mokara, Aranda, Cattleya* and *Phalaenopsis*. Several lakhs of *Dendrobium Cymbidium* and *Vanda* plantlets were produced in the

laboratory and distributed to the unemployed entrepreneurs for cultivation and production of orchid cut flowers.

He had discovered the effects of *Schizophyllum commune*, an edible mushroom, on the growth and development orchid plantlets in vitro and the discovery is being arranged for application for patent, through DBT.

He has been engaging in development of protocols to commercial micro propagation of floricultural crops such as Anthurium, Gerbera, Cala, Alstomeria, Lilies. He has developed complete protocol for mocroprogagation and flowering of a special lily, Lilium Mc Cleanii which is endemic only at Siroy hill of Manipur. Due to his efforts, this endangered lily species can be cultivated at Manipur Valley.

He had also collected and conserved 92 species of medicinal and aromatic plants used by local herbal man in the herbal garden established in the college. Micro propagations of some of the important herbs have been started in his Tissue culture Laboratory.

He had successfully developed complete protocol for commercial production of high quality compost from phumdi (floating biomass) of Loktak lake through intervention of **Biotechnology**. Successful conversion of compost from Phumdi (floating biomass) has been started in commercial scale at LDA, Ningthoukhong. Under his guidance a laboratory has been set up at Loktak Development Authority Manipur, for commercial multiplication of a fungus and a bacterium for use in the production of compost from Phumdi. At present more than 17,000 tons of this phumdi compost have been produced at LDA Ningthoukhong Site. Complete trial of this phumdi compost in farmers' field both for rice cultivation and vegetable production have been successfully conducted and results have been submitted for extension to LDA. The complete protocol for commercial production of high equality compost from Phumdi compost has been dedicated to the people of Manipur in a function attended by several Ministers on 17th July, 2004.

He was the research coordinator of College of Agril. ,CAU and under his direction several research related programmes have been taken up in College of Agril. CAU, Imphal. He has already established a highly sophisticated Molecular biology Laboratory for research works in the field of Agricultural Biotechnology.

He has identified the genes LycE gene and CrtRB1 for enhanced ProA in maize.

The first step in breeding maize for enhanced beta carotenoid contents involves an assessment of the extent of genotypic variation existing in adapted germplasm, to achieve the desired improvement. Further studies revealed to identify alleles for other genes in the

pathway that increase total carotenoids and that slow the conversion of βcarotene to β-cryptoxanthin and zeaxanthin, to exploit more fully the natural genetic variation potential in provitamin A biofortification of maize.

Recent molecular studies using allele-specific marker assisted selection at crtRB1 highlights new genetic targets for high carotenoid concentration and improvement in β-carotene and provides guidelines for the selection of desirable genetic variation in breeding germplasm (. Hence the marker-assisted breeding has been initiated, to introgress the crtRB1 3'TE favourable allele using the identified high β-carotene inbreds as donors, to develop provitamin A-rich maize cultivars with the following objectives He has developed beta carotene rich single cross hybrids Maize for the regions concerned.

He is working to develop high yielding non lodging varieties of black scented rice (*Chakhao*) as a coordinator of scented rice project under DBT GOI. A North-eastern State of India has their importance as scented and are dark purple color which is used for the community feast as well as ceremonial purposes as a delicacy. The literal meaning of *Chakhao* is delicious rice (Chak-rice: hao-delicious). The black scented rice (*Chakhao*) has been used by the traditional medical practitioners of Manipur also. They are sold in the local markets at a premium rate and can be sold in the international market at very high premium price. ***Chakhao*** is term as superfood in the international market and in very high demand.The black scented rice cultivars of Manipur are poor yielders which are found only in this state of India and little is known about it throughout the Indian region. There is a huge demand in the domestic market, having possibilities for export, but the farmers of Manipur are neglecting to cultivate these cultivars as they are low yielding. As well *Chakhao* are poorly studied, recently, we have just initiated the study of *Chakhao* where the anthocyanin pigmentation and its impact to human health has been reported for just two cultivars. Thus, the present project aimed the exploration of black scented rice and furthermore, inclusion of the *Chakhao* in the crop improvement programme.

He has developed two rice varieties for wide cultivation in Manipur and other north East States under the umbrella of CAU.

1. CAU-S-1 **(LAIRAPHOU)** from a crossing between **Phouren mubi X Shiastia Aao**
2. CAU-S-2 (**Lamyanba Irabot Phou**) from a crossing between **Leima phou X IR-24**

These varieties are under trial by the Department of Agriculture, Govt. Of Manipur for release in Manipur and other States of North East India. However these varieties are widely

and popularly grown by the farmers of Manipur during main khariff season since last four years.

He is the coordinator of "COMMERCIAL SEED PROJECT" established by the University to produce quality seeds of truthfully label seeds of paddy, mustard and mung. He is the coordinator of "Village seed production programmes" of the college. Till now under these programmes more than 100 tonnes of truthfully label seeds of paddy Var. Tamphal Phou(CAUR-1) and Lamyanba Irabot phou(CAU-S-2) were produce and distributed to the farmers of Manipur at nominal price. He has also produced more than 8 tonnes of Yellow Sarson Var.Ragini and PL-401 to replace old toria var. M-27. Many varieties of paddy, mustard, tomato and chilly are under trial for release for North East India.

He was appointed as Dean,College of Agriculture, Central Agricultural University, Imphal on 29th Jan. 2014 working as Dean till now. Since his taking over of Dean, College of Agriculture, CAU, Imphal several positive changes have been brought in terms of Academic and Research atmospheres in the College. The extension of technologies developed by the teachers of this College have been done under Mera Gaon Mera Gaurav programme of the Union Agril. Ministry very successfully. A villager has been adopted for three years to showcase the technologies developed by this College. Under his leadership very important academic flagship programme such as Ph.D. in 4 different disciplines were started. A high tech modern full-fledged Biotechnology Laboratory was established with financial help from DBT, GOI and several equipments worth more than Rs 1-2 Crores were purchased and many students not only this College but also Students of other Universities and College and faculty members were benefited by these equipment in their research programme. Within this short span of 3 years a Gymnasium, Auditorium, Guest House, ATIC building, Canteen and Medical Centre were constructed and opened for the student and teaching communities. A new PG Hostel for Boys was also constructed and inaugurated. The Campus was brought under WiFi system under NKN project with very high speed connection. The Teaching system has been modernized and the overall administration was brought under digitized system.

He was instrumental to open a new College of Food Technology in 2014, as Dean i/c and enrolment of students was started since July, 2015. The intake capacity of the course is 20 students per year from all North East States of India including 3 nos. of students nominated by ICAR. Full-fledges laboratories have been established to cope with the teaching of students for B. Tech courses in Food Technology. This is highest achievement with regard to Food Technology was the establishment of commercial plant for production of natural pineapple powder with natural aroma. The Technology was developed at College of Agril. Engineering and Post Harvest Technology, CAU at Ranipool, Sikkim. The Cost of the commercial plant is about Rs 1.62 Crore.

15. Details of work experience, if any.

He has been entrusted the following administrative works of the College of Agriculture CAU, Imphal.

1.	Warden Boys' Hostel, College of Agril., CAU	Sept. 1986 to Aug. 1990
2.	Warden Girls' Hostel, College of Agril., CAU	Aug. 1990 to Aug. 1991
3.	Security & Estate Officer, College of Agril., CAU	Aug. 1991 to Oct. 1997
4.	Head, Dept. of Plant Breeding & Genetics, College of Argil., CAU, Imphal	Dec. 2005 to 2014
5.	Coordinator, Commercial Seed project, CAU	June 2008 to 2014
6.	Coordinator College Research Advisory Committee	Dec. 2005 to 2014

16. Experience of guiding M.Sc(Agri) and Ph.D.Students:

1. <u>M.Sc. Thesis submitted in (CAU):</u>

a) N. Ningthemjao Singh (1993): Stability analysis for some important agro-economic charactors of Sunflower (*Helianthus annus* L.) in Manipur.

b) A Mempishak Devi (1995): Genetic analysis of yield and its components in tomato (*Lycopersicon esculentum* Mill) in Manipur Valley.

c) L. Pradip Singh (1997): Genetic divergence in vegetable mustard (*Brassica juncea* (L) Czern & Coss (ssp) integrifolia (West) Shell).

d) Jayshree Dey (1999): Phenotypic stability analysis in tomato (*L. esculentum* Mill)

e) Rita Nongthombam (2000): Genetic divergence of tomato (*L. esculentum* Mill.) in Manipur.

f) E. Sulodhani Devi (2001): Generation Mean analysis in tomato (*L. esculentum* Mill.)

g) Monalisa H. (2002): Genetic analysis of important trails in Indian mustard (*B. Juncea*) L.

h) S. Gunamani Singh (2004): Genetic analysis of tomato resistance to bacterial wilt in Manipur valley.

i) Bidya Moirangthem (2009): Genetic divergence in local rice cultivars of Manipur.

2.Ph.D. Thesis Supervised for submission in Manipur University:

M. Dinachandra Singh (2000) : Genetic divergence of local chilli. (*Capsicum annum* L.) of Manipur. (Result declared)

3. **Ph.D. Thesis external examiner:**

a) **Smt. Madhabi Bhattacharjee (1997)** : "Study in induced variation in Okra (*Abelmoscus esculentus* L.) of west Bengal". submitted to BCKVV, Mohanpur, W.B.

b) **Shri D.Raghu(2012):** "Studies on molecular basis of host-pathogen interaction in cassava and identification of differentially expressed genes/proteins cassava mosaic virus infection." Submitted to TNAU, Coimbatore.

c) **Shri B.Cayalvizhi** (2013): An investigation on genomic and proteomic approaches for mungbean yellow mosaic virus(MYMV) resistance in mungbean(Vigna radiate(L) Wilczek) Ohwi and Ohashi)

4. **Ph.D. Thesis Supervised for submission in Vishva Bharati University :**

HEISNAM NANITA DEVI (2012): "Estimation of genetic components and molecular mapping of genes in relation to gall resistance in Rice".

Ph.D. Thesis Supervised for submission in Gauhati University :

Thokchom Victor (2012):"Identification of markers linked to Gall midge resistance gene in rice for Manipur Biotype" submitted at Guwahati University.

5. **Ph.D. Thesis Supervised for submission in VIshva Bharati University :**

Naorem Brajendra Singh: Genetics of some quantitative characteristics in tomato , *Solanum lycopersicum Mill.*

6. **Post Doctoral fellows under supervision:**

1. **Dr. Ch. Dhananjoy Singh: Studies on cytotaxonomy and phylogeny of two endemic genera of ratuss and mus in Manipur.** Under DBT Post Doctoral program in Biotechnology and Life Sciences. 2010 -2013

2. **Dr.K.Sobita Devi: To investigate anticarcinogenic potentials of medicinal Plants used in the Traditional system in Manipur.** . under DBT Post Doctoral program in Biotechnology and Life Sciences. 2010 -2013
3. **Dr. L.Sangeeta Devi: Genetic Diversity of citrus germplasms in Manipur by cytological studies.** Under DST Womens' Scientists Program 2011-2013

17. Details of publication:

Sl. No.	Author	Year	Title	Journal	NAAS Jrn.ID
1	2	3	4	5	6
1	N.B. Shuan, P.A. Pulina and J.M. Laishram	1981	Analysis of genetic correlations among agro economic characters in rice. Scientific works of Tashkent Agricultural Institute.	Scientific works of Tashkent Agricultural Institute. Vol.93 :65-72	NA
2	J.M. Laishram	1983	Inheritance of quantitative characters in inter specific hybrid of short stem varieties of tetraploid cotton.	Scientific works of Tashkent Agricultural Institute. Vol.107 : 31-42	NA
3	S.M. Mirahmedov and J.M.Laishram	1983	A study of different forms of CMS in G.hirsutum L.	Scientific work of Tashkent Agricultural Institute. Vol. 107 :131-138	NA
4	N.G.Simongulian, J.M.Laishram and P.A.Ibragimov	1985	Ways to develop short stem inter specific hybrids of tetraploid cotton	J. Khlopkavodstvo: No.5:30 33. Moscow.USSR	NA
5	J.M Laishram	1991	Genetic variability for some agro-economic characters in upland cotton *(G. hirsutum L)* in Manipur.	Indian J. Hill Farming 4 (I): 61-62.	1.0
6	J.M Laishram	1995	Stability analysis in Indian mustard in acid soil under low fertility rain fed conditions in Manipur.	*Indian J. Hill Farming 8* (I): 47-50.	1.0
7	J.M. Laishram and N,N, Singh	1997	Phenotypic stability for quantitative characters in sunflower *(Helianthus annuus L.)* in Manipur.	*Indian J Genetic.* 57 (2): 174-179.	6.6
8	Y.Sunitibala Devi & J.M.Laishram	1998	*In vitro* propagation of *Dendrobium* hybrids through shoot-tip and axillary bud culture.	*J. Orchid Soc.India* 13(1-2):79:81.	1.0
9	J.M.Laishram & Y.Sunitibala Devi	1999	Micropropagation of Renanthera *imschootiana* Rolfe. through shoot tip, axillary bud and leaf segment cultures.	*J. orchid Soc. India* 13(1-2):1-4.	1.0
10	J.M. Laishram,	1999	The effect of different	*J. Orchid Soc. India* 13(1-	1.0

	Y.Sunitibala, L.Jamini Devi and K.Homen Singh		concentrations of nitrogenous and phosphatic fertilizers on growth and flower quality of *vanda coerulea* Griff.	2)15-18.	
11	J.M Laishram	2001	"Molecular Markers-its application in plant breeding" presented as term paper in the 3rd International course on "Biotechnology in agriculture: plant and microorganisms. Dec. 29,2000-Feb 15, 2001 at Faculty of Agriculture.	The Hebrew University of Jerusalem. Rehovet. Israel.	NA
12	Laishram, J.M., Singh, N.B. and Singh, N.G.	2002	Combining Ability in Diallel Cross of Toria.	***Indian J. Hill Farmg.* 15(1): 63-67.**[NAAS,2007 RATING (1)]	1.0
13	E.Sulodhani Devi, N.B. Singh, A.Bijaya Devi, N.G. Singh and J.M. Laishram	2005	Gene action for fruit yield and its components in tomato (*Lycopersicon esculentum* Mill.).	***Indian J. Genet.*, 65(3):221-222.**[NAAS,2010 RATING (5.1)]	6.6
14	P.Monalisa, N.B.Singh, N.G.Singh and J.M.Laishram	2005	Genetic divergence and combining ability in relation to heterosis in Indian mustard [*Brassica juncea* (L.) Czern and Coss.] for seed yield, its attributes and oil yield.	***Indian J.Genet.* 65(4):302-304.** [NAAS,2010 RATING (5.1)]	6.6
15	Singh, N.B., Devi, A. Mempishak, Singh, N.G., Singh, M.Dinachandra, Laishram, J.M. and Bhagirath, Th.	2007	Combining ability analysis for yield and its components in tomato (*Lycopersicon esculentum* Mill.) in Manipur valley.	***Environment and Ecology* 25(1):1-4.** [NAAS, 2007 RATING (2)]	2.1
16	Singh, N.B., Monalisa, P, Singh, N.G., and J.M. Laishram	2007	Heterosis in Indian mustard (*Brassica juncea* (L.) Czern and Coss) for seed yield, its attributes and oil yield in relation to Genetic Divergence and Combining Ability.	***Environment and Ecology* 25(1):220-224.** [NAAS,2007 RATING (2)]	2.1
17	Shabir Hussain Wani, N.B.Sigh, N.G.Singh, K.Noren Singh and J.M.Laishram.	2007	Stability of seed yield and its component characters in rice bean (*Vigna umbellata*) Thunb. Ohwi and Ohashi).	***Environment and Ecology* 25S (4):1094-1098.** [NAAS,2007 RATING (2)]	2.1
18	K. Noren Singh, N. B. Singh, P. R. Sharma, J. M. Laishram, M. R. K. Singh and A.M.Devi	2008	Adaptability of Lathyrus (*Lathyrus sativus* L.) under rainfed areas of Manipur Valley.	***Environment and Ecology* 26 (3 A):1218-1220.** [NAAS,2007 RATING (2)]	
19	Dhananjoy Ch.,	2011	Biodiversity of rat species in	NE BIO : Vol. II (2) : PP	

	Ibemhal A., Brajendra N., J. M. Laishram and CB Singh		Manipur.	210-215	
20	Heisnam Nanita Devi, Amitava Paul and J.M.Laishram	2011	Molecular mapping of genes for resistance against rice gall midge(Manipur Biotype) using RAPD **markers.**	NeBIO **Volume II Issue 2**	0.3
21	Dhananjoy Ch, J.M. Laishram, C.B. Singh, Surendrajit L., Montessori S., M. Samuel Jebberson, Renuca Devi Th and Samarjit N	2012	Diversity in karyotypes of *Bandicota bengalensis bengalensis* Gray	NeBIO **Volume III Issue 2**	0.3
22	Asem Ibemhal, **J.M. Laishram**, Ch. Dhananjoy, Brajendra Naorem and Robin Toijam	2012	*In-vitro* induction of multiple shoot and root from the rhizome of *Kaempferia galanga* L.	NeBIO **Volume III Issue 3**	0.3
23	Dhananjoy Ch., JM Laishram, CB Singh, Sobharani N.and Anand Th	2012	Bamboo flowering: A case study at *Kwatha* in Manipur	NeBIO Volume III Issue 3	0.3
24	Asem Ibemhal Devi and J. M. Laishram	2012	Diversity analysis of local Rice germplasm of Manipur Based on Random Amplified Polymorphic DNAs	NeBIO **Volume III Issue 3**	0.3
25	Sujata Sapam and JM. Laishram	2012	*In Vitro* Micropropagation of English Yew (*Taxus baccata* L.) from Manipur, India	NeBIO **Volume III Issue 3**	0.3
26	VictorThokchom, J.M.Laishram, N.B.Singh, A.Handique	2012	Identification of markers linked to gall midge resistance gene in rice for Manipur biotype	J.Crop Science and Biotechnology (**Accepted**)	
27	Mutum Jaishree, J.M.Laishram and Warjeet S. Laitonjam	2012	Phytocontituents of the leaves of *Kaemferia galangal* Linn.	**International journal of medicinal Plant research. (Accepted)**	
28	Chingangbam DH.[1], **JM Laishram1**, Brajendro N. [1] , Chingakham B. Singh[2], , Yannick Chaval[3], and Gauthier Dobigny[3] \		The Oriental rat, *Rattus tanezumi* (Temminck, 1844) from Manipur	**The Asian Jour. Ani. Sc. Vol.7(2):96-102**	2.4

29	Dhananjoy CH.[1], Vishwanath W.[2], Varatharajan R.[2], C.B. Singh[3], Shantikumari G.[2], Brajendra N. and **J. M. Laishram[1]**		Affinity of the extra heterochromatic arms in somatic cell cycle in wild rats	**communicated**	
30	Ch. Dhananjoy[1*], **J.M. Laishram[1]**, N Brajendra[1], C. B. Singh[2], and S.Jiten[1]		Chromosomal Abnormalities in Rats after Bamboo Flowering in Manipur, India	*International Journal of Basic and Applied Medical Sciences ISSN: 2277-2103 2012 Vol. 2 (3) September-December, pp.252-256*	1.0
31	Dhananjoy CH.[1], **J.M.Laishram[1]**, Darson A.[2], Jiten S.[2], C.B. Singh[3] and Brajendra N.		Compartmentalization of chromosomes in germinal and somatic nuclei of *Mus musculus*	**communicated**	
32	K.Sobita and J.M.Laishram	2012	*Invitro* cytotoxic activities of some traditional medicinal plants in cancer cell line by SRB Assay	NeBIO Vol.3(4)	0.3
33	Naorem B. S.,Amitava P.,Shabir H.W., and **J.M.Laishram**	2012	Heterosis studies for yield and its components in Tomato(*Solanum lycopersicum* L.) under valley conditions of Manipur	**LS- An International Jour. Of Life Sciences Vol.1:3:224-232**	1.0
34	Chingangbam DH.[1], J M Laishram[1], TaibangjamLoidang Chanu[3], Chingakham B. Singh[2] and S. Jiten[3]	2012	Karyotypes and sex chromosome variation in ***Rattusnitidus***(Hodgson, 1845)	NeBIO Vol.3(4)	0.3
35	Naorem B. S.,Amitava P.,Shabir H.W., and **J.M.Laishram**	2013	Heterosis studies for quality traits in tomato (*Solanum lycopersicum* L.) using bacterial wilt tolerant and high yielding varieties	**Jour. Pl. Sci. Res. :29(1) :111-118**	1.0

GENE SUPMISSION TO NCBI

1. **LOCUS JQ918374 719 bp DNA linear ROD 19-JUL-2012**
DEFINITION Rattus nitidus voucher 344 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial.
Dhananjoy,C.S., Yannick Chaval, **Laishram,J.M.** and Samarjit,N.S.

2. **LOCUS 345 719 bp DNA circular ROD 19-MAR-2012DEFINITION Rattus tanezumiACCESSION 345**
Dhananjoy,Ch.M., **Laishram,J.M.**, Chaval,Y., Brajakishwor,C.S., Naorem,B.S. and Dobigny,G

18. Any other relevant information that you may like to furnish.

He has successfully completed and executing the following research projects.

Sl. No.	Title of Project	Funding Agency	Duration
1.	Collection, Classification and genetic analysis of oilseed crops of Manipur.	DSTE, Govt. Of Manipur	Oct. 1989 to Sept. 1990
2.	A study and development of Agrotechniques of jhum fields of Manipur.	DST, Govt. of India New Delhi	June 1991 to May 1994
3.	Training in orchid cutflower production to Scheduled Caste and Tribes of Manipur	DBT, Govt. of India New Delhi.	March 1996 to Feb. 2001
4.	IRDP through tissue culture of some economic important plants of NE India.	CSIR, Govt. of India New Delhi.	April 2002-toMarch 2003
5.	Commercial production of compost from phumdi (floating biomass) of Loktak lake through intervention of biotechnology.	ICEF& LDA Imphal Manipur	April,2001 to March2004.
6.	Collection and determination of active Compounds in some important medicinal Plants of Manipur.	NMPB, GOI, New Delhi	2009-2011
7.	Institutional Biotech Hub	DBT, GOI, New Delhi	2010-2014
8.	"Marker Assisted introgression of LycE gene for enhanced ProA in maize"	DBT, GOI, New Delhi	2011-2015
9	Development of high yielding non lodging and resistance to biotic stresses through the intervention of biotechnology	DBT, GOI, New Delhi	December 22nd 2016 -

19. Participation in National / State Level Committee.

1. Founder member of the Manipur state scientific committee for establishment of Institute of Biodiversity and sustainable Development in Manipur.
2. Member of Manipur State Horticulture Development Committee.
3. Member of Manipur State Oilseed Development Committee.
4. Member /Resource person of the Committee for drafting Environment status of Manipur State.
5. Task force member of DBT GOI for North east India.

Signature

(Dr. J. M. Laishram)