



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:05-07-2021

Department	CHEMISTRY	Application No.	202110135
Area of Research	METAL OXIDE SUPPORTED SURFACTANT SYNTHESIS, CHARECTERIZATION AND ITS APPLICATIONS	Research Mode	FULL TIME

Name :SUMITHRA B
Date of Birth / Age :08-08-1998 / 22 Years
Gender :FEMALE
Category :MBC
e-Mail ID :sumithrab1998@gmail.com
Mobile :7548876320



B. Sumithra

Father's/Husband's Name	M. BALAMURUGAN	Father's/Husband's Occupation	NIL
Family Income	65000	Residential Type	RURAL
Birth Place	SIVAKASI	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	SINGLE
Aadhaar No.	240565018584	PAN No.	MBSPS1080B
Physically Challenged	NO	Type of Disability	-NO
Address for Communication: 2/1666, GOPAL NAGAR, SITHURAJA PURAM SIVAKASI VIRUDHUNAGAR DISTRICT TAMIL NADU INDIA Pin-626123		Permenant Address: 2/1666, GOPAL NAGAR, SITHURAJA PURAM SIVAKASI VIRUDHUNAGAR DISTRICT TAMIL NADU INDIA Pin-626123	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
B. SC	CHEMISTRY	MADURAI KAMARAJAR UNIVERSITY	2019	8.26	1 ST CLASS WITH DISTINCTION	REGULAR
M.SC	CHEMISTRY	KALSALINGAM ACADEMY OF RESERCH AND EDUCATION	2021	8.31	1 ST	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status

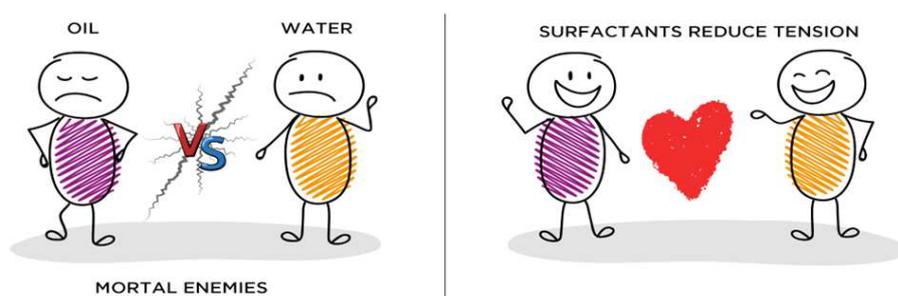
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PROPOSED RESEARCH PLAN

INTRODUCTION

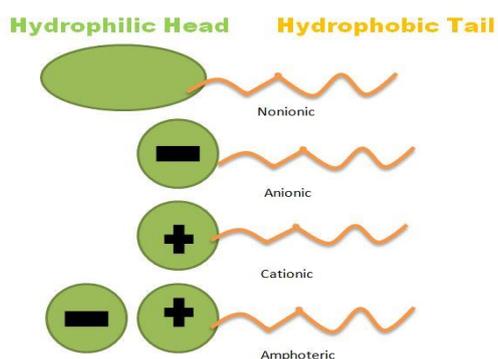
SURFACTANTS

SURFace ACTive AgeNT' - a surfactant (are also known as amphiphiles or tensides) is a molecule that lowers surface tension and has a distinct molecular structure that gives rise to their molecular properties. The word amphiphile was coined by Paul Winsor 50 years ago. It comes from two Greek roots. (amphi means "double", "from both sides", "around", or amphibian and the root philos which expresses friendship or affinity). The polar portion exhibits a strong affinity for polar solvents, particularly water, and it is often called hydrophilic part or hydrophile. The apolar part is called hydrophobe or lipophile, from Greek roots phobos (fear) and lipos (grease) [Figure 1].



CLASSIFICATION AND STRUCTURE OF SURFACTANTS

The most accepted and scientifically sound classification of surfactants is based on their dissociation in water. Surfactants are said to be classify into four broad categories: anionic, cationic, amphoteric and nonionic.



Anionic Surfactants give rise to a negatively charged surfactant ion (hence anionic) and a positively charged counter ion upon dissolution in water.

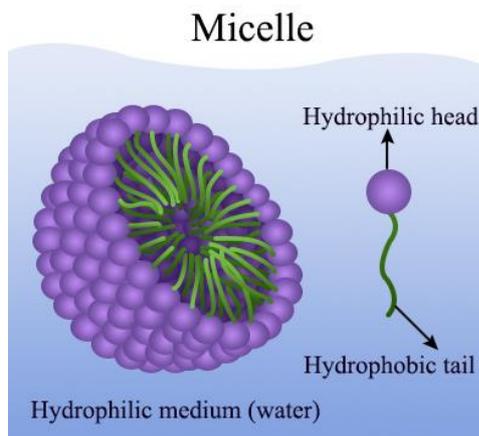
Cationic Surfactants yield a positively charged surfactant ion (hence cationic) and a negatively charged counter ion upon dissolution in water.

Amphoteric or Zwitterionic When a single surfactant molecule exhibit both anionic and cationic dissociations it is called amphoteric or zwitterionic.

Nonionic Surfactants are characterized by hydrophilic head groups that do not ionize appreciably in water.

MICELLES AND MICROEMULSIONS

When the surfactant molecules dissolve in water they form a monolayer. This monolayer formed lower surface tension as function of the excess surfactant concentration (Baviere, 1991).



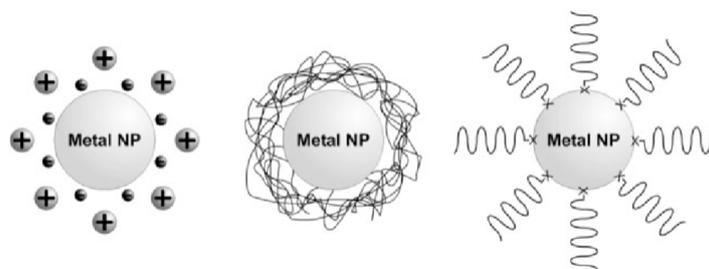
At the correct saturation and temperature, surfactant molecules aggregate into micelles, with the HC parts towards inside in a dynamic equilibrium with the non micellated molecules. (Baviere, 1991) Micelles form a concentration called Critical Micelle Concentration and it is identified by a change in the properties of the solution. The micellization helps to increase the surfactant solubility.

OBJECTIVES

The application of enhanced-oil recovery (EOR) methods during oil production lead to the formation of water-in-crude oil emulsions. The pros and cons of emulsion formation have motivated significant research in the oil industry in the last few decades. Therefore, the objective of this study is to contribute to the understanding of water-in-crude oil emulsions stabilizing mechanisms. In this regard, several parameters affecting the stability of water-in-oil emulsions are examined including oil-to-water ratio, surfactant type (Cationic and non-ionic surfactants were used), aqueous phase composition and temperature.

On the other hand, it has been suggested that solid content is a good predictor of emulsion stability in oil operations. Generally, the most stable emulsions are found when interfaces are stabilized by the smallest particles. Therefore, stabilization mechanisms for water-in-oil emulsions are also investigated in the presence of some metal oxide nanoparticles.

GENERAL SCHEME OF THE PROPOSED WORK



REFERENCE

1. Abdel-Raouf M.E., (2012). Factors Affecting the Stability of Crude Oil Emulsions, Crude Oil Emulsions- Composition Stability and Characterization, Prof. Manar El-Sayed Abdul-Raouf (Ed).
2. Abdel-Raouf M.E.; Abdul-Raheim A. M. and Abdel-Azim A. A., (2011) Surface Properties and Thermodynamic Parameters of Some Sugar- Based Ethoxylated Amine Surfactants: 1-Synthesis, Characterization, and Demulsification Efficiency. *Journal of Surfactant and Detergent* 14:113–121.
3. Al-Raoush, R.I., Willson, C.S. (2005): A pore-scale investigation of a multiphase porous media system. *J. Contam. Hydrol.* Vol.77, pp. 67–89
4. Amanullah Md., Al-Tahini, A.M. (2009): Its Significance in Smart Fluid Development for Oil and Gas Field Application. *Nanotechnology* SPE No. 126102-MS



அறிவியற் புலம்
FACULTY OF SCIENCE

மதுரை காமராசர் பல்கலைக்கழக ஆட்சிப்பேரவை

கமித்ரர். பர.

இப்பல்கலைக்கழகத்தில் இணைந்த

தன்னாட்சிக் கல்லூரியான

மீ காளீஸ்வரி கல்லூரி, சிவகாசி

விதித்திருந்த பாடப் பயிற்சியினையும் தேர்வினையும் நன்கு முடித்த பின்னர் ஏப்ரல் 2019 இல் நடைபெற்ற தேர்வில்
தனிச்சிறப்புடன் சார்ந்த முதல் வகுப்பு பெற்று தேர்வுற்றார் எனக் கல்லூரித் தேர்வு ஏற்புக்குழு பரிந்துரைத்தவாறு,

வேதியியல் பிரிவில் அறிவியல் இணையர் பட்டம்

பெறுதற்கு உரியவர் ஆகின்றார் என இதன்வழி அறிவிக்கின்றது.

பல்கலைக்கழக இலச்சினையுடன் இது வழங்கப்படுகின்றது.

The Senate of the MADURAI KAMARAJ UNIVERSITY

hereby makes known that SUMITHRA B has been admitted to the

DEGREE OF BACHELOR OF SCIENCE IN CHEMISTRY

he/she having successfully completed the course of studies and examination prescribed therefor by the

SRI KALISWARI COLLEGE - SIVAKASI

(an Autonomous College of this University) and upon the recommendation by the College Awards Committee and

having been placed by them in the

FIRST CLASS WITH DISTINCTION

at the Examination held in APRIL 2019

Register No. : A6UCH020

Centre Code : 629

Given under the seal of the University



பல்கலைநகர், மதுரை - 625 021
Palkalai Nagar, Madurai - 625 021
நாள் Dated 28 September 2019

தேர்வாணையர்
Controller of Examinations

பதிவாளர் பொறுப்பு
Registrar in-charge

துணைவேந்தர்
Vice-Chancellor



SRI KALISWARI COLLEGE (Autonomous), SIVAKASI

(RE-ACCREDITED WITH 'A' GRADE BY NAAC)

(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY, MADURAI)

B.Sc. Chemistry



No. SKC U **3541**

CONSOLIDATED MARKS AND GRADES

NAME OF THE CANDIDATE				D.O.B	REGISTER NO	DATE OF PUBLICATION			EXAM. M & YR.			CENTRE CODE			
SUMITHRA.B				08/08/1998	A6UCH020	07/06/2019			APR. 2019			629			
PART	SEMESTER	COURSE CODE	COURSE TITLE	CREDITS	MARKS			MARKS SCORED			CREDIT POINT	GRADE	STATUS	MONTH & YEAR	
					INT	EXT	TOT	INT	EXT	TOT					
I	1	15UTAL11	TAMIL I	3	25	75	100	21	50	71	7.1	A++	P	N 16	
I	2	15UTAL21	TAMIL II	3	25	75	100	21	50	71	7.1	A++	P	A 17	
I	3	15UTAL31	TAMIL III	3	25	75	100	20	47	67	6.7	A+	P	N 17	
I	4	15UTAL41	TAMIL IV	3	25	75	100	20	35	55	5.5	B+	P	A 18	
II	1	15UENL11	GENERAL ENGLISH I	3	25	75	100	21	56	77	7.7	D	P	N 16	
II	2	15UENL21	GENERAL ENGLISH II	3	25	75	100	21	46	67	6.7	A+	P	A 17	
II	3	15UENL31	GENERAL ENGLISH III	3	25	75	100	21	49	70	7.0	A++	P	N 17	
II	4	15UENL41	GENERAL ENGLISH IV	3	25	75	100	20	38	58	5.8	B+	P	A 18	
III	1	15UCHA11	ALLIED I - MATHEMATICS I	5	25	75	100	21	65	86	8.6	D++	P	N 16	
III	1	15UCHC11	FOUNDATION COURSE - BASIC CONCEPTS OF CHEMISTRY	3	25	75	100	20	55	75	7.5	D	P	N 16	
III	1	15UCHC12	ORGANIC, ANALYTICAL AND PHYSICAL CHEMISTRY	4	25	75	100	22	44	66	6.6	A+	P	N 16	
III	2	15UCHA21	ALLIED MATHEMATICS II	5	25	75	100	21	38	57	5.7	B+	P	A 17	
III	2	15UCHC21	ORGANIC, INORGANIC AND PHYSICAL CHEMISTRY	4	25	75	100	18	61	79	7.9	D	P	A 17	
III	2	15UCHC2P	SEMI MICRO INORGANIC QUALITATIVE ANALYSIS LAB	4	40	60	100	38	57	95	9.5	O+	P	A 17	
III	3	15UCHA31	ALLIED - PHYSICS I	3	25	75	100	21	47	68	6.8	A+	P	N 17	
III	3	15UCHC31	ORGANIC CHEMISTRY I	4	25	75	100	20	55	75	7.5	D	P	N 17	
III	3	15UCHC32	CHEMISTRY OF METALLIC AND NONMETALLIC COMPOUNDS	4	25	75	100	20	42	62	6.2	A	P	N 17	
III	4	15UCHA41	ALLIED PHYSICS II	3	25	75	100	18	38	56	5.6	B+	P	A 18	
III	4	15UCHA4P	PRACTICAL IN PHYSICS	4	40	60	100	37	59	96	9.6	O+	P	A 18	
III	4	15UCHC41	ADSORPTION, CHEMICAL KINETICS AND SOLID STATE	4	25	75	100	20	51	71	7.1	A++	P	A 18	
III	4	15UCHC4P	VOLUMETRIC ANALYSIS AND COMPLEX PREPARATIONS LAB	4	40	60	100	26	45	71	7.1	A++	P	A 18	
III	4	15UCHO41	GREEN CHEMISTRY	3	25	75	100	20	52	72	7.2	A++	P	A 18	
III	5	15UCHC51	ORGANIC CHEMISTRY II	5	25	75	100	18	43	61	6.1	A	P	N 18	
III	5	15UCHC52	INORGANIC CHEMISTRY I	5	25	75	100	19	45	64	6.4	A	P	N 18	
III	5	15UCHC53	THERMODYNAMICS & PHOTO CHEMISTRY	5	25	75	100	16	63	81	8.1	D+	P	N 18	
III	5	15UCHO52	POLYMER CHEMISTRY	3	25	75	100	20	46	66	6.6	A+	P	N 18	
III	6	15UCHC61	ORGANIC CHEMISTRY - III	4	25	75	100	20	51	71	7.1	A++	P	A 19	
III	6	15UCHC62	CONCEPT OF BIO-INORGANIC, ORGANOMETALLIC AND ENVIRONMENTAL CHEMISTRY	4	25	75	100	20	62	82	8.2	D+	P	A 19	
III	6	15UCHC63	ELECTROCHEMISTRY, QUANTUM MECHANICS AND PHASE RULE	5	25	75	100	21	52	73	7.3	A++	P	A 19	
III	6	15UCHC6P	ORGANIC QUALITATIVE ANALYSIS AND ESTIMATIONS LAB	5	40	60	100	39	54	93	9.3	O	P	A 19	
III	6	15UCHC6Q	PHYSICAL CHEMISTRY PRACTICALS	4	40	60	100	37	59	96	9.6	O+	P	A 19	
III	6	15UCHC6R	GRAVIMETRIC AND ORGANIC PREPARATIONS LAB	4	40	60	100	35	46	81	8.1	D+	P	A 19	
III	6	15UCHO62	ANALYTICAL CHEMISTRY	3	25	75	100	23	59	82	8.2	D+	P	A 19	
IV	1	15UCAN11	FUNDAMENTALS OF COMPUTERS	1	25	75	100	20	41	61	6.1	A	P	N 16	
IV	1	15UCHE11	WATER TECHNOLOGY	1	25	75	100	19	46	65	6.5	A+	P	N 16	
IV	2	15UBTN21	HUMAN DISEASES - NON COMMUNICABLE DISEASES	1	25	75	100	21	55	76	7.6	D	P	A 17	
IV	2	15UCHE21	BASICS OF COMPUTER IN CHEMISTRY	1	25	75	100	20	50	70	7.0	A++	P	A 17	
IV	3	15UCHS31	PAPER AND PULP TECHNOLOGY	2	25	75	100	21	41	62	6.2	A	P	N 17	
IV	3	15UCHV31	MATCH INDUSTRY	1	25	75	100	19	46	65	6.5	A+	P	N 17	
IV	5	15UCHS51	NANO CHEMISTRY	1	25	75	100	20	38	58	5.8	B+	P	N 18	
IV	5	15UCHS52	DRUG CHEMISTRY	1	25	75	100	18	46	64	6.4	A	P	N 18	
IV	5	15UVED51	VALUE EDUCATION	1	25	75	100	19	49	68	6.8	A+	P	N 18	
IV	6	15UCHS61	SUGAR CHEMISTRY	2	25	75	100	24	60	84	8.4	D+	P	A 19	
IV	6	15UCHV61	PYROTECH	1	25	75	100	22	57	79	7.9	D	P	A 19	
IV	6	15UESR61	ENVIRONMENTAL STUDIES	1	25	75	100	22	63	85	8.5	D++	P	A 19	
V	4	15UEXT4E	SCIENCE COMMUNICATION CLUB	1	100		100	91		91	9.1	O	P	A 18	
				EXTRA CREDIT COURSE											
				15UBAEX4 ,15UBAEX2 ,15UEEEX1 ,15UEEEX2				8							
				*** END OF STATEMENT ***											
CURRENT SEMESTER					CUMULATIVE PERFORMANCE										
PART	CREDITS EARNED		CGPA	PART	CREDITS EARNED		CGPA	GRADE	CLASSIFICATION						
I	---		---	I	12		6.6	A+	I CLASS						
II	---		---	II	12		6.8	A+	I CLASS						
III	29		8.26	III	101		7.53	D	I CLASS With Distinction						
IV	4		8.30	IV	14		7.02	A++							
V	---		---	V	1		9.1	O							
				Total	140										

Medium of Instruction : ENGLISH



(Dr. S. Krishnamurthy)

(Mrs. Pitchaikani Prabakaran)

Signature of the Candidate

PRINCIPAL

CONTROLLER OF EXAMINATIONS

Note : Any alteration or overwriting makes the Statement of Marks and Grades invalid.



Sri Kaliswari College (Autonomous)

Affiliated to M.K.University

A.Meenakshipuram Anaikuttam, Sivakasi - 626130



TRANSFER AND CONDUCT CERTIFICATE

T.C No. : 03010

Roll No : 16CHE045

1. Name of the Student (in Block letters) : **SUMITHRA.B**
2. Sex : Female
3. Name of the Parent / Guardian : M.Balamurugan
4. Date of Birth as per the Register (in figures and words) : 08-08-1998 (EIGHT AUGUST NINETEEN NINETY EIGHT)
5. Nationality, Religion & Caste : Indian Hindu Maruthuvar
6. Community to which he / she belongs : MBC
7. Date of Admission and Class in which admitted : 13-07-2016, First Year B.Sc.Chemistry
8. Date on which the student left the College : 16-05-2019
9. Class in which the student was studying at the time of leaving : Third Year B.Sc.Chemistry
10. Subject Studied Part I : Tamil
Part II : English
Part III : Chemistry
11. Whether he/she is qualified for promotion to a higher class : Refer Mark Statement
12. Whether the student has paid all the fees or other dues to the College : Yes
13. Personal Marks of Identification of the student : a) A mole on the left little finger
b) A mole on the right fore arm
14. Date of application for T.C : 16-05-2019
15. Conduct and Character : *[Signature]*

Date : 16-05-2019

PRINCIPAL
Principal
SRI KALISWARI COLLEGE
(Autonomous)
SIVAKASI - 626 130

आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA



स्थायी लेखा संख्या कार्ड

Permanent Account Number Card

MBSPS1080B



नाम / Name
SUMITHRA B

पिता का नाम / Father's Name
BALAMURUGAN

07082019

जन्म की तारीख /
Date of Birth
08/08/1998

हस्ताक्षर / Signature

यह कार्ड के खोने/पाने पर कृपया सूचित करें/नोट करें:

आयकर पैन सेवा इकाई, एन एस डी एल

चौथी मंजिल, मंत्री स्टर्लिंग,

प्लॉट नं. 341, सर्वे नं. 997/8,

मॉडल कॉलोनी, दीप बंगला चौक के पास,

पुणे - 411 016.



If this card is lost / someone's lost card is found,
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4th Floor, Mantri Sterling,

Plot No. 341, Survey No. 997/8,

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Pune - 411 016.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081

e-mail: tininfo@nsdl.co.in

आयकर विभाग

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Permanent Account Number Card

MBSPS1080B



नाम/ Name

SUMITHRA B

पिता का नाम/ Father's Name

BALAMURUGAN

07082019

जन्म की तारीख/
Date of Birth

08/08/1998

BS-1

हस्ताक्षर/ Signature

BS-1

इस कार्ड के खोने/पाने पर कृपया सूचित करें/नोट करें:

आयकर पत्र सेवा इकाई, एन एस डी यू

चौथी मंजिल, मन्त्री स्ट्रीट,

प्लॉट नं. 341, सर्वे नं. 997/8,

मॉडल कॉलोनी, दीप बंगला चौक के पास,

पुणे - 411 016.

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Pune - 411 016.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081

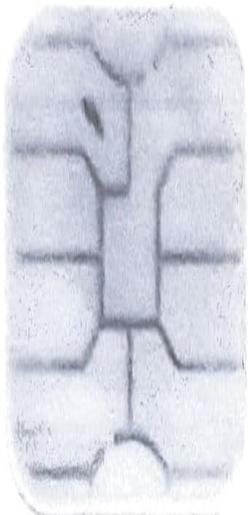
e-mail: tininfo@nsdl.co.in



UNION OF INDIA Driving Licence (Tamil Nadu)



DL No. **TN95 20190001448**



Date of Issue

21-05-2019

Valid Till



20-05-2039



Date of Birth

08-08-1998

Blood Group

O+

Name

SUMITHRA B

Son/Daughter/Wife of .

BALAMURUGAN



TND00629587

TN95 20190001448



MCWOG

21-05-2019

Badge Date

Badge No.



Bon Ton Softwares

Address

12/B11 SOLAI COLONY

PERIYA KARUPPAN ROAD SITHURAJAPURAM (CT)

Sivakasi, Virudhunagar, TN 626109

Holder's Signature

Signature of Issuing Authority

TN95 RTO SIVAKASI

Form 7 Rule 16(2)

R Dis. 159 dt. 10/7



சான்றிதழ் எண்
Certificate No

1659474



மாவட்டக் குறியீடு எண்
District Code

வட்டக் குறியீடு எண்
Taluk Code

கிராமக் குறியீடு எண்
Village Code

1	7	
0	7	
0	1	7

சாதிச் சான்றிதழ்

COMMUNITY CERTIFICATE

இருளைன் மாவட்டம் சிவகாசி வட்டம்
சிவகாசி கிராமம்/நகரம், திரு. / திருமதி / செல்வி/
செல்வன் டாக்டர் சிவசுந்தரம் தகப்பனார்/கணவர்
பெயர் டாக்டர் சிவசுந்தரம்
சிவசுந்தரம்

வகுப்பைச் சார்ந்தவர், அரசு ஆணை நிலை எண். 28 பிற்பட்ட மற்றும்
மிகவும் பிற்பட்ட பிரிவின் நலத்துறை நாள் 19-7-1994 வரிசை எண் 162 படி
மிகவும் பிற்பட்ட பிரிவினைச் சார்ந்தவர் எனச் சான்றளிக்கப்படுகிறது.

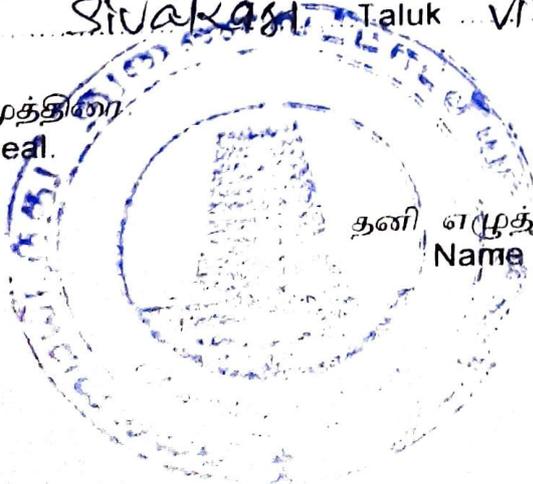
This is to certify that B. SUMITHRA Son / Daughter
of Thiru. BALAMURUGAN of
Village / Town, SIVAKASI Taluk.

MIRUDHUVANAR District of the State of Tamil Nadu belongs to
HINDU-MARU DHUVAR Community, which is recognised as a
Most Backward Class as per Government Order (Manuscript Series) No. 28,
Backward Classes and Most Backward Classes Welfare dated 19th July 1994.
vide Serial No. 162.

2. திரு. / திருமதி / செல்வன் / செல்வி டாக்டர் சிவசுந்தரம்
என்பவரும் அவருடைய குடும்பத்தினரும் தமிழ்நாட்டில்
மாவட்டத்தில் சிவகாசி வட்டத்தில் சிவசுந்தரம் கிராமத்தில்/
நகரத்தில் வசித்து வருகிறார்கள் எனச் சான்றளிக்கப்படுகிறது.

2. It is certified that Thiru/Tmt/Selvan/Selvi B. Sumithra and
his/her family ordinarily reside(s) at Periakaruppan Village/Town
Sivakasi Taluk Mirudhuvanar District of Tamil Nadu.

முத்திரை
Seal



கையொப்பம்
Signature

நாள்
Date

தனி எழுத்துக்களில் பெயர்
Name in Capital Letters

பதவிப் பெயர்
Designation

ZONAL DEPUTY TAHSILDAR
SIVAKASI