VAAGDEVIDEGREE&PGCOLLEGE

DIST:HANUMAKONDA,TELANGANASTATE–50600

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INNOVATION ECOSYSTEM OUTPUTS AND INITIATIVES

AcademicYear-2023-2024

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Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Project Proposals Submitted by Faculty Members to DST-SERB, New Delhi for the Financial Support

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TARGET AND DIVERSITY ORIENTED SYNTHESIS OF DUDAWALAM IDE -A AND ITS ANALOGUES AS POTENTIAL ANTI-PARASITIC AGENTS

File Number : SUR/2023/001220

Submitted By : Dr. SRINIVAS AVULA
[SERB Qualified Unique Identification Document: SQUID-1978-SR-1378]

Submission Date : 30-Nov-2023

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Kishanpura, Hanamkonda

PROPOSAL DETAILS

(SUR/2023/001220)

Dr. SRINIVAS AVULA
asvas1978@gmail.com
ASsociate PROFESSOR (CHEMISTRY)

Vaagdevi Degree and PG College
Karimnagar-warangal rd, rajaji nagar, ramnagar, Hanumakonda, Telangana-506001
[College (Private)]

Technical

Scheme :	State University Research Excellence (SERB SURE)		
Research Area	Organic Chemistry (Chemical Sciences)		
Duration :	36 Months	**Contact No :**	+919949437219
Date of Birth	30-Aug-1978		
Nationality :	INDIAN	**Total Cost**	27,09,400

Project Summary :

Dudawalamides A1 (1a) is a natural cyclic depsipeptide recently isolated from a Papua New Guinean field collections of the Cyanobacterium Morea producens by Gerwick,et al1.Its structure was elucidated by combination of 1D and 2D NMR experiments and MS analysis, where as the absolute configuration was determined by X-ray crystallography,modified Marfeys analysis,chiral phase GCMS,and chiral phase HPLC.Structurally Dudawalamide A is a depsipeptide consisting of seven α-amino/hydroxy residues including Glycine,N-Methyl phenylalanine, N-Methyl Isole ucine, Prol ine,Alanine, lactic acid and 2,2- dimethyl -3-hydroxy -7-Octynoic acid(R-Dhoya).The absolute conf iguration of the common Aminoacids,lactic acid and R-Dhoya were determined by X-ray cryst allog raphy and advanced HMBC correlations. Dudawalamide A showed most potent antiparasitic acti vity against P.faliciparam with IC50 value 3.6µM. Till date, there is no synthesis reported in the literature for this molecules. The structural features of these 19-membered cyclic depsipeptide and the biological properties have prompted us to take up the total synthesis of this molecule. Further, the diversity oriented synthesis of various analogues and their biological evaluation will certainly helpful for the structure activity relationship studies.

Objectives :

- Total Synthesis of Dudawalamide A
- Diversity Oriented synthesis of Dudawalamide A Analouges
- Biological Evaluation of Dudawalamide A and its Analouges

Keywords :
Dudawalamide A,Marine Natural product,Diversity Oriented Synthesis, Anti parasitic Agents

Expected Output and Outcome of the proposal :

1.2to 3 Publications 2.One Patent 3 First Synthetic Route for Dudawalamide A

Suitability of the proposed work in major national initiatives of the Government:

Make in India

Theme of Proposed Work:

Health

Collaboration Details for last 5 Years :

Planned Collaboration for the proposed work with any foreign **No**

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5. Melanie Denißen (*Beilstein J. Org. Chem.* **2017,** *13,* 2340–2351) reported one pot synthesis of blue-luminescent 4-aryl-1*H*-benzo[*f*]isoindole-1,3(2*H*)-diones by T3P® activation of 3-arylpropiolic acids.
6. Wang Shu-Liang (*Chemistry letters*, 2011,40, No.8834-836) An Efficient Three-component Tandem Reaction Leading to Pentacyclic Isoindole-fused Benzo[*b*,*e*][1,4]diazepines in Water
7. Joshua S. Alford (*J. Am. Chem. Soc.* 2013, 135, 32, 11712–11715) reported a highly effected synthesis of 2,3-fused pyrroles from cyclic ketones has been achieved. The transformation includes a rhodium-catalyzed reaction of 4-alkenyl-1-sulfonyl-1,2,3-triazoles featuring an unusual 4π electrocyclization. The methodology was further extended to the synthesis of indoles using a one-pot reaction starting from 1-ethynylcyclohexenes.
8. Lorenzo Caruana (***Chem. Commun.***, 2014,**50**, 445-447) reported the synthesis of Indoles bearing Michael acceptors at the 4-position were engaged in organocatalytic enantioselective cascade reactions with enals. Careful optimisation of the reaction parameters overcame the inherent low reactivity of these substrates, rendering 3,4-ring fused indoles in good yields, excellent enantioselectivities and as single diastereoisomers.
9. Fedor I. Zubkov (***RSC Adv.***, 2012,**2**, 4103-4109) reported the Aromatization of IMDAF adducts in aqueous alkaline media.
10. Cang Cheng (*Org. Lett.* 2020, 22, 13, 4985–4989) reported the synthesis of 3,4-fused tricyclic indoles through cascade carbopalladation and C-H bond amination. Development and total synthesis of Rucaparib.
11. Yu Nakagava (*Bio sci.Bio tech. Bio chem, 1997, 61(8) ,1415-1417*) reported synthesis and biological activities of Indolactone- V, the lactone analogue of the tumor promoter – Indolactam – V.
12. Zhen green Xu (*Org.Bio.Mol. Chem, 2011,9, 2512*) reported the total synthesis of Indolactam V
13. ToshiharuNoji (*Tetrahedron, 71,23, 2015, 3833- 3837*) reported A concise total synthesis of Indolactam V from tryptophanol and Indole

2.2 National Status:

Literature survey indicates none of the reports are available by the Indian researchers on my proposed work.

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TARGET AND DIVERSITY ORIENTED SYNTHESIS OF DUDAWA LAM ID E -A AND ITS ANALOGUES AS POTENTIAL ANTI-PARASITIC AGENTS

A Research Proposal Submitted to:

Science and Engineering Research Board

Technology Bhavan, New Mehrauli Road

Ministry of Science and Technology

New Delhi-110 016

Principal Investigator

Dr Avula Srinivas
Associate Professor
Department of Chemistry
Vaagdevi Degree &PG College
Ramnagar,Hanamkonda
Telangana-506001

Co-Principal Investigator
Dr. G.Vikram
Associate Professor
Dean Life Sciences
Vaagdevi Degree &PG College
Ramnagar,Hanamkonda
Telangana-506001

Other Technical Details

1. State of the Art:

Dudawalamides A[1] (1a) is a natural cyclic depsipeptide recently isolated from a Papua New Guinean field collections of the Cyanobacterium Morea producens by Gerwick,et al[1].Its structure was elucidated by combination of 1D and 2D NMR experiments and MS analysis,where as the absolute configuration was determined by X-ray crystallography,modified Marfeys analysis,chiral phase GCMS,and chiral phase HPLC.Structurally Dudawalamide A is a depsipeptide consisting of seven α-amino/hydroxy residues including Glycine,N-Methyl phenylalanine, N-Methyl Isole ucine, Prol ine,Alanine, lactic acid and 2,2- dimethyl -3-hydroxy -7-Octynoic acid(R-Dhoya).The absolute conf iguration of the common Aminoacids,lactic acid and R-Dhoya were determined by X-ray cryst allog raphy and advanced HMBC correlations. Dudawalamide A showed most potent antiparasitic acti vity against *P.faliciparam* with IC_{50} value 3.6μM.

Till date, there is no synthesis reported in the literature for this molecules. The structural features of these 19-membered cyclic depsipeptide and the biological properties have prompted us to take up the total synthesis of this molecule. Further, the diversity oriented synthesis of various analogues and their biological evaluation will certainly helpful for the structure activity relationship studies.

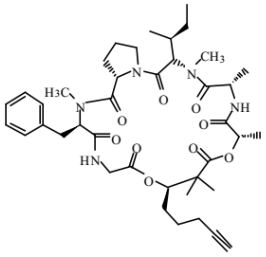


Figure 1: Structure of Dudawalamide A

2. Origin of the Proposal

Cyclodepsipeptides[2] contains one or more amino acid(s) replaced by a hydroxy acid, resulting in at least one ester bond in the core ring structure. They are secondary metabolites of fungi and plants, or they originate from the marine environment. Cyclodepsipeptides show an interesting spectrum of biological activity such as immunosuppressant, antibiotic, antifungal, anti-inflammatory,antiparasitic and anticancer effects.[3] Since the discovery of the didemnins, this class of natural products continues to stimulate active research in synthetic and medicinal chemistry, as well as clinical oncology and cell biology.[4] Members of this new class of potential drugs may serve as lead compounds in the drug development process for pharmacologically more potent and

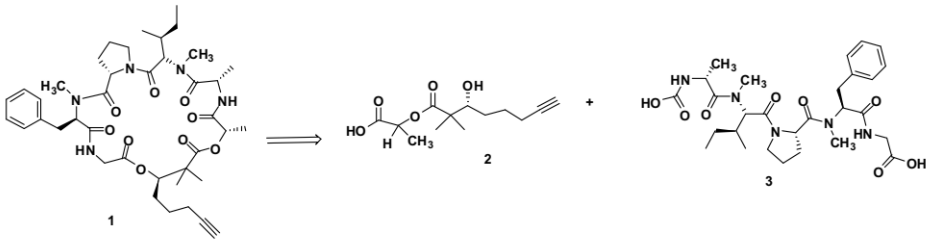
toxicologically safe derivatives.[5-9] Some of these natural products and (semi-)synthetic derivatives have already been evaluated in clinical trials.

3. Work Plan:

3.1 Methodology:

3.1.1. Total synthesis of Dudawalamide A

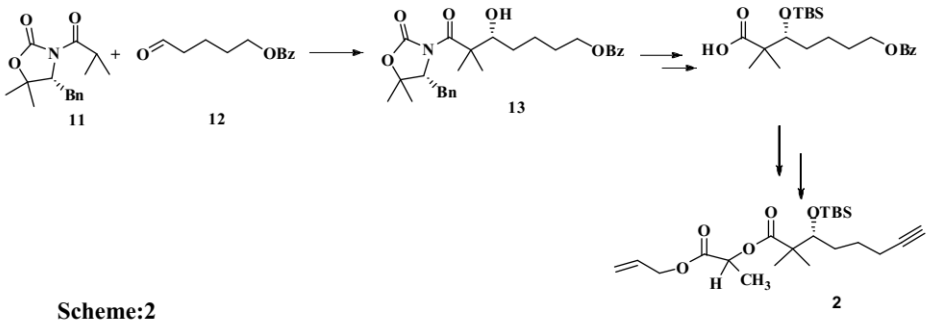
Initially our plan is to synthesize Dudawalamide A. The strategic bond disconnections of Dudawalamide A were made at two ester bonds, which provide two fragments **2** and **3** (Scheme 1). The fragment **2** is having one hydroxy acid, which can be obtained from a diol using Aldol reaction as the key step. The remaining starting materials for both the fragments can obtained commercially. Further, this retrosynthesis is a useful approach for making various analogues.



Dudawalamide A, Scheme:1

Retrosynthetic analysis of Dudawalamide A

Synthesis of Fragment -2: Towards the synthesis of fragment **2**, we will begin with the synthesis of hydroxyl acid **6**. Aldol reaction of Benzoyl protected Pentnal with oxazolidinone **4** to give compound **5**, which will be further transformed to TBS-protected acid **6** in three steps. Compound **7** will be synthesized starting from commercially available L.Valine and will be will be reacted with acid **6** to obtain **5a** which will be transformed to fragment 2.



Scheme:2

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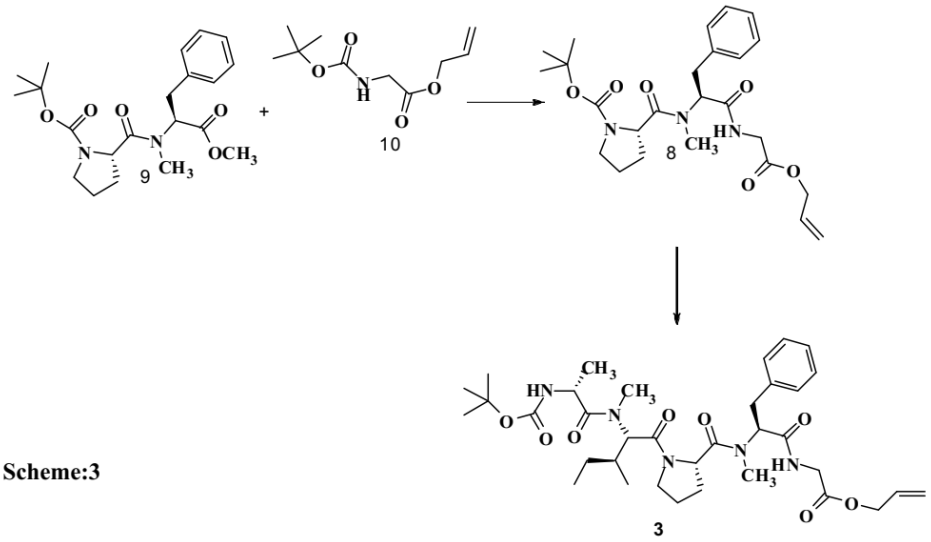
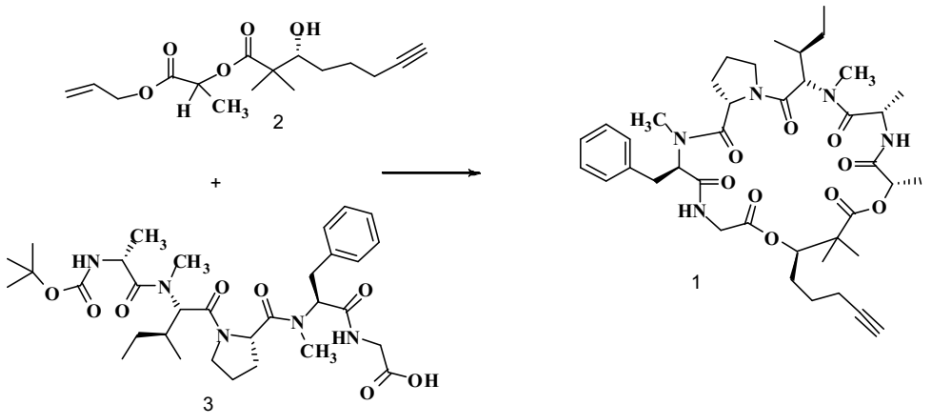
Synthesis of Fragment -3: Towards the Synthesis of fragment 3 we will begin with the synthesis Proline and Phenyl alanine dipeptide followed by coupling with Glycine,Isoleucine and Alanine dipeptide.



Scheme:3

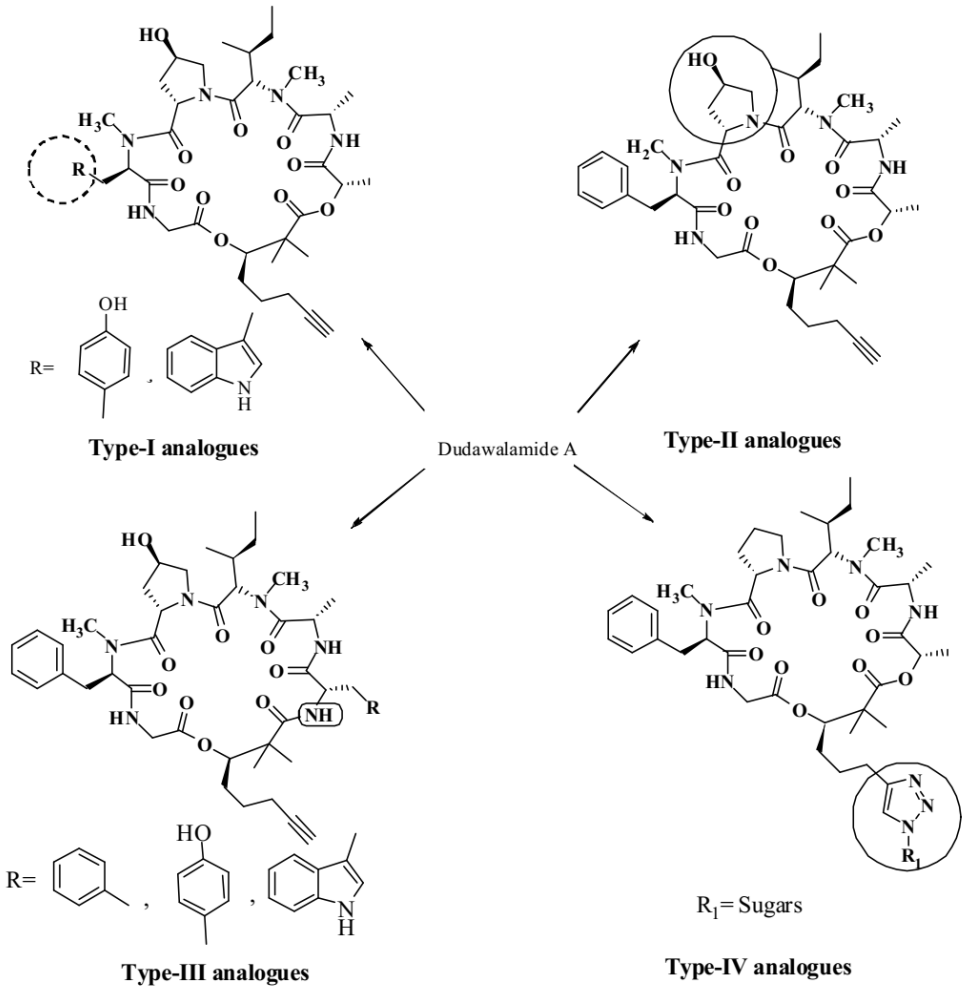
Coupling of 2 + 3 to DudawalamideA: The synthesized two fragments will be coupled to obtain Dudawalamide A as shown below (**Scheme 4**).



Scheme:4

b) <u>Diversity Oriented Synthesis of Dudawalamide A analogues:</u>

The second objective of proposed work is to make the analogues of Dudawalamide A towards increasing the bio-availability by introducing the polar groups or functionalities in the structure.



We are proposing to make four types of analogues by varying different amino acids in each class (Scheme 5). i) In the type-I analogues, the phenyl group will be swapped with two different groups, i. e., 4-hydroxyphenyl and indolyl groups. ii) Type-II analogues: In this proline will be replaced by 4-hydroxyl proline. If the compound shows interesting antiparasitic properties, further the free

hydroxyl group can be alkylated with various linkers. Type-I and Type-II analogues will be obtained by changing the monomers in fragment 3 (shown in scheme 3). iii) Type-III analogues: The α-hydroxy acid will be replaced with α-amino acid to make an amide bond instead of ester bond. Three various amino acids were proposed including phenyl alanine, tryptophan and tyrosine. This class of analogues will also be obtained by using the above mentioned amino acids instead of hydroxyl acid for the preparation of fragment-3 iv) Type-IV analogues: Recently, click chemistry has received considerable attention in the drug discovery, as the triazole functionality plays an important role. Our plan is take the advantage of triple bond present in the Dudawalamide A to generate various triazole analogues (type-iv analogues) via 1, 3-dipolarcycloaddiion using azides. The azides will be obtained from sugar alcohols.

c).Biological Evaluation of Dudawamide A and its Analouges:

After getting Target Molecule and its analogues We planned to evaluate antiparasitic activity of Target molecule and its analogues with help of Biology Departments(CO-PI).

3.2 Time Schedule of activities giving milestones through BAR diagram.

3 months	6 months	9 months	12 months	15 months	18 months	21 months	24 months	27 Months	30 months	33 months	36 months
Appointment of RA → Procurement ofchemicals → Total synthesis of Dudawalamide A →				. Total synthesis of Dudawalamide A → Diversity oriented synthesis of Dudawalamide A analouges →				Diversity oriented synthesis of Dudawalamide A analogues and Biological Evaluation → Accumulation of results for publicationand preparation of report →			

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4. Expertise:

4.1 Expertise available with the investigators in executing the project:

Dr Avula Srinivas (PI) has done his Ph.D on Design and Synthesis of novel heterocyclics at Kakatiya University in 2010. His research at **CSIR –IICT, Hyderabad as a Research Associate from 2011-2014 was on First and Total synthesis of Hantupeptine A-C,** where he was developed a novel first synthetic route for the synthesis of Hantupeptins. He was completed one **major research Project as a Principal investigator Sponsored by CSIR – HRDG, New Delihi with entitled Design, Synthesis and Biological Evaluation of Triazole Glycosides and Macrolides.** Based on Ph.D and IICT experience he has successfully developed short synthetic routes different methodologies for polycyclic Aromatic compounds and Glycosides and evaluated its Anti cancer, Nematicidal, Anti microbial activities with the help of biology Departments of CSIR- IICT,HYD. From this work in the field of organic synthesis the investigator has already published over **33** publications in well-reputed organic chemistry journals.

Dr G.Vikram (CO-PI) has done his PhD on Engineering Abiotic Stress Tolerance In Cultivated Tomato at Jawaharlal Nehru Technological University **(JNTUH)** in 2014. His research at Vaagdevi Degree and PG College, Hanamkonda on **Drug Discovery**,**Computer asisted drug design, Identification of new microbials**, Genetic Engineering. Immuno Technology, Bioprocess Technology , IPR, Envi ronmental Biotechnology, Plant Molecular Biology where he was developed Standardized the protocols for determination of antibiotics sensitivity, Optimized the protocols for Agrobacterium tumefaciens mediated genetic transformation, Purification and characterization of lyase enzyme using Gel Filtaration Chromatography, Enzyme assay, Antimicrobial Activity of Solanum torvum. From this work in the field of Biology the investigator has already published over **24** publications in well-reputed International journals and filed **3** Patents.

4.2 Summary of roles/responsibilities for all Investigators:

S. No.	Name of the Investigators	Role	Responsibilities
1.	Dr Avula Srinivas	PI	Synthesis of Dudawalamide A and its Analouges
2.	Dr G.Vikram	Co-PI (1)	Biological Evaluation of Dudawalamide and its analouges

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4.3 Key publications published by the Investigators pertaining to the theme of the proposal during the last 5 years

Dr Avula Srinivas, Principal Investigator

1. Microwave Asisted synthesis of Methylene bis (Phenyl-1H-1,2,3-Triazole-5-yl- 1,3-Thiazolidenones as Potential Anti cancer Agents. A.Srinivas Reddy, S.Rajitha, P.Suresh. *Russian journal of General Chemistry,* 2023, 5, 1201-1209.
2. Synthesis and biological assessment of some fused Pyrane derivatives, **Avula Srinivas**, Sriramoju Shamili, Siddoju Kavitha, Ishrath farheen, *Journal of Heterocyclic chemistry, 2023,60*,116-122.
3. Synthesis of hybrid peptides from unnatural amino acids, *Indian J. Chem*. **2022**, *60B*, 1199-1204.
4. Synthesis of new Heterocycles via Methylene bis(2-(2methoxyphenyl)thiazolidin-4-one)as potential anticancer agents, Avula Srinivas, SontiReddy Rajitha, *Org. Commun*. 15:2 (2022) 96-107.
5. Microwave assisted synthesis of Hybrid Heterocyclics. **Avula Srinivas,** *Indian J. Chem*. **2021**, *60B*, 2021.
6. Synthesis and Anticancer activity of Triazole linked macrocycles and Heterocyclic's. **Avula Srinivas,** Enugala Kalyan Rao, *Acta Chim.Slov*.2021, 68, 2,404-413.
7. Synthesis and Biological evaluation of novel pyrane glycosides, Avula Srinivas, Malladi Sunitha, Sriramoju Shamili, *Acta Chim.Slov*.2020, 67,4, 1061-1071.
8. Microwave assisted synthesis and anticancer activity of Triazolyl Thiazolidinone derivatives of Pyrane**. Avula Srinivas,** Malladi Sunitha, Pulluri Karthik & K. Vasumathi Reddy *Acta Chim.slov*, **2019**, 66,700-710.
9. **Book chapter**: Synthesis and Biological Evaluation of Novel Phosphonyl Thiazolo pyrazoles, **Avula Srinivas,** Heterocycles synthesis and biological activities. DOI: http:// dx. doi. org/ 10. 5772/intechopen.86977,**2019**.
10. Microwave assisted synthesis of Novel Spiro Phosphonyl Thiazolo Pyrazole Glycosides as Potential Nematicidal Agents, **Avula Srinivas**, Malladi Sunitha, Pulluri Karthik, S.Rajitha& K. Vasumathi Reddy *Journal of Heterocyclic chemistry, 2019, 56,* 1291-1295.
11. Microwave Assisted Synthesis of hybrid Heterocyclics as biological potent molecules, **Avula Srinivas**, Malladi Sunitha, Pulluri Karthik, G.Rajesh Kumar & K. Vasumathi Reddy, *Journal of Heterocyclic chemistry, 2018, 55,* 1564-1573**.**

12. Synthesis and Biological Evaluation of Mannose Thiazolidinones, Avula Srinivas, Md. Aleempasha, V Sudhakar Reddy, S Srinivas, *Research & Reviews: A Journal of Drug Formulation, Development and Production,5,2,2019,*38-46.
13. Synthesis, Nematicidal and Antifungal properties of Hybrid heterocyclics ,**Avula Srinivas,** Malladi Sunitha, Pulluri Karthik, & K. Vasumathi Reddy , *Acta Chim.Slov*.2017, 64, 1030-1041.
14. Microwave assisted synthesis of Hybrid Heterocyclics as Potential Nematicidal agents, **A.Srinivas**, M.Sunitha, P.Karthik, G.Nikhitha, K.Raju, B.Ravinder, S.Anusha, T. Rajasri, D. Swapna, D. Swaroopa, *Acta .chim. Slov*, **2017**, 64, 319.
15. Synthesis and in *vitro* study of Hybrid Heterocyclics as potential Nematicidal agents, **A.Srinivas**, M.Sunitha, P.Karthik, G.Nikhitha, K.Raju, B.Ravinder, S.Anusha, T. Rajasri, D. Swapna, D. Swaroopa, K.Srinivas and K.Vasumathi Reddy, *Journal of Heterocyclic chemistry*, 2017,54, 3250-3257**.**
16. **Stereo selective synthesis of Hantupeptins A,B, and C common fragment, A.Srinivas, M.Sunitha, C.Govind Rao, *Indian J. Chem*. 2016, *55B*, 1239.**
17. Synthesis and biological evaluation of Triazole linked Thiazolidenone Glycosides, **Srinivas, A**.; Santhosh, M.; Sunitha, M.; Karthik, P.; Srinivas, K.; Vasumathi Reddy, K.; *Acta .Chim . Slov*, **2016**, 63, 827.
18. **Stereo selective synthesis of Southern fragment of Hantupeptine, A. Srinivas, Sunitha, M. Govind rao, C. *Acta Chem.Slov*, 2016, *63*,344.**
19. **Stereo selective synthesis of C1-C24 Fragment of Antanapeptin A. Avula Srinivas, Malladi Sunitha, Gaddam Rajesh. *Organic communications.*9:1, 2016, 1-8.**

Dr G.Vikram(CO-PI)

1. Venkataramana Kandi*,Sabitha Vadakedath Purna Singh Addanki,Vikram Godishala Venkata BharatkumarPinnelliClinical Trials: The Role of Regulatory Agencies, Pharmaco vigilanc eLaws, Guidelines, Risk Management, Patenting, and PublicizingResults*, Borneo Journal of Pharmacy*,**2023**,6,1,93-109.
2. RNA Isolation CDNA Synthesis and Arsenic Methyl traznsferase gene Expression studies b y RT-PCRINTHREE different microbial Species, *International jopurnal of current advance research,2023,12,1,*1795-1801.
3. Kandi, V., Vundecode, A., Godalwar, T. R., Dasari, S., Vadakedath, S., & Godishala, V. (2022). The Current Perspectives in Clinical Research: Computer-Assisted Drug Designing, Ethics, and Good Clinical Practice. Borneo Journal of Pharmacy, 5(2), 161-178.

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4. Kandi, V., Suvvari, T. K., Vadakedath, S., & **Godishala, V.** (2021). Microbes, Clinical trials, Drug Discovery, and Vaccine Development: The Current Perspectives. *Borneo Journal of Pharmacy*, *4*(4), 311-323.
5. Vadakedath Sabitha , Kandi Venkataramana *, Suvvari Kumar Tarun , Kutikuppala Venkata Simhachalam Lakshmi , **Godishala Vikram** and Shahapur R. Praveen , The Challenges of Biomedical Waste Management During the Ongoing Coronavirus Disease-19 (COVID-19) Pandemic: The Current Scenario, Micro and Nanosystems 2021; 13.
6. Vadakedath S, Kandi V, Mohapatra RK, Pinnelli VBK, Yegurla RR, Shahapur PR, **Godishala V**, Natesan S, Vora KS, Sharun K, Tiwari R, Bilal M, Dhama K.Immunological aspects and gender bias during respiratory viral infections including novel Coronavirus disease-19 (COVID-19): a scoping review. *J Med Virol*. 2021 May 15.
7. S Kagithoju, **V Godishala**, M Banala, RS Nanna (2018) "Evaluation and Optimization of DNA Extraction Protocol from Leaves of an Endangered Forest Tree Species Strychnos potatorum Linn. F"- Indian Forester, **144**(8): 742-746.

4.4.Bibliography

1.Almality,J.;Karla,L.M; Glukov,E.;Spadafore,C.;Gutierrez,M,;Gerwick,W.H.Dudawalamide A-D, Antiparasitic Cyclic depsipeptides from the Marine Cyanobacterium Moorea producens.*J.Nat Products,***2017**,*80*,1827-1836.

2. a).Tripathi, A.; Puddick, J.; Prinsep, M.R., Lee, P.P.F.; Tan, L.T.; 2009. Hantupeptin A, a cytotoxic cyclic depsipeptide from a Singapore collection of Lyngbya majuscula. *J. Nat. Prod*. **2009**, *72*, 29–32.b).Bradey,D.R.; Sarah,E.W.;Don.M.C.Asymetric Total synthesis of Apratoxin D. *Org.Lett*. **2012**. *14,*20,5192-5195.c). Hanusch,A.G.; Volker,C.K.;Stephen,A.S.;Throstan,B,Total synthesis of the cyclic depsipeptide Vioprolide D via its (Z)- Diastereomer.*Angewandte Chemie*,**2020**,*59*,30,12357-12361.d).Matra piele,G.; Yesica Garacia,R.;Maria Jesus,M.;Jose Manual Molina,G.;Simmon,M.;Andres,M.;Carmen,C.;Judit-Tulla,P.;Fermado,a.The first and Total synthesis of the cyclic depsipeptide Pipecolidespin A.Nature Communications,2013, **4**, Article number: 2352.

3. Sarabia, F.; Chammaa, S.; Ruiz, A.S.; Ortiz, L.M.; Herrera, F.J. Chemistry and biology of cyclic depsipeptides of medicinal and biological interest. *Curr. Med. Chem.*, **2004**, *11*, 1309-1332.

4. Vera, M.D.; Joullié M.M. Natural products as probes of cell biology: 20 years of didemnin research. *Med. Res. Rev.*, **2002**, *22*, 102-145.

5.Yurek-George, A.; Cecil, A.R.; Mo, A.H.; Wen, S.; Rogers, H.; Habens, F.; Maeda, S.; Yoshida,

M.; Packham, G.; Ganesan, A. The first biologically active synthetic analogues of FK228, the depsipeptide histone deacetylase inhibitor. *J. Med. Chem.*, **2007**, *50*, 5720-5726.

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7.Liang, B.; Richard, D.J.; Portonovo, P.S.; Joullié, M.M. Total syntheses and biological investigations of tamandarines A and B and tandamarin A analogs. *J. Am. Chem. Soc.*, **2001**, *123*, 4469-4474.

8.Pan, P.S.; McGuire, K.L.; McAlpine, S.R. Identification of Sansalvamide an analog potent against pancreatic cancer cell lines. *Bioorg. Med. Chem. Lett.*, **2007**, *17*, 5072-5077.

9.Otrubova, K.; Lushington, G.; Vander Velde, D.; McGuire, K.L.; McAlpine, S.R. Comprehensive study of sansalvamide A derivatives and their structure-activity relationships against drug-resistant colon cancer cell lines. *J. Med. Chem.*, **2008**, *51*, 530-544.

5. List of Projects submitted/implemented by the Investigators

5.1 Details of Projects submitted to various funding agencies:

S. No	Title	Cost in Lakh	Month of submission	Role as PI/Co-PI	Agency	Status
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5.2 Details of Projects under implementation

S. No	Title	Costin Lakh	Duration	Role as PI/Co-PI	Agency
1	Total synthesis of Hantupeptine A-C And Their analogues as cyto toxic agents	15,00000/-	**2011-2014 3Years**	CSIR-RA	CSIR EMR-I
2	Design,Synthesis and Biological Evaluation of Triazole Glycosides and Macrolides	230000/-	**2016-2018 3Years**	PI	CSIR HRDG EMR-II
3	Synthesis and Bio autography of Ribavirin Isomers	500000/-	**2021-2022 2Years**	PI	RICH-Telangana

5.3 Details of Projects completed during the last 5 years

S. No	Title	Costin Lakh	Duration	Role as PI/Co-PI	Agency
1	Total synthesis of Hantupeptine A-C And Their analogues as cyto toxic agents	15,00000/-	**2011-2014 3Years**	CSIR-RA	CSIR EMR-I

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2	Design,Synthesis and Biological Evaluation of Triazole Glycosides and Macrolides	230000/-	**2016-2018 3Years**	PI	CSIR HRDG EMR-II
3	Synthesis and Bio autography of Ribavirin Isomers	500000/-	**2021-2022 2Years**	PI	RICH-Telangana

6. Equipment available with the Institute/ Group/ Department/Other Institutes for the project:

Equipment available with	Generic Name of Equipment	Model, Make & year of purchase	Remarks including accessories available and current usage of equipment
PI & his/her group	Rota Evaporator	Aditya,2016	Working
	Magnetic Stirrer	Remi,2016	Working
	UV Chamber	Sisco,2016	Working
	Columns	Borsil 2016	Working
	Hot Plate	Sisco 2016	Not working
PI's Department	IR Spectrometre	Perkin Elmer 2011	Working
Other Institute(s) in the region At NIT Warangal	NMR Spectrometre Mass Spectrometre	Brucker	Working

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Budget Details

Institution Wise Budget Breakup :

Budget Head	Vaagdevi Degree and P.G. College	Total
Research Personnel	18,14,400	**18,14,400**
Consumables	3,00,000	**3,00,000**
Travel	90,000	**90,000**
Equipment	4,15,000	**4,15,000**
Contingencies	90,000	**90,000**
Total	**27,09,400**	**27,09,400**

Institute *Vaagdevi Degree and P.G. College*

Year Wise Budget Summary (Amount in INR)

Budget Head	Year-1	Year-2	Year-3	Total
Research Personnel	6,04,800	6,04,800	6,04,800	**18,14,400**
Consumables	1,00,000	1,00,000	1,00,000	**3,00,000**
Travel	30,000	30,000	30,000	**90,000**
Equipments	4,15,000	0	0	**4,15,000**
Contingencies	30,000	30,000	30,000	**90,000**
Grand Total	**11,79,800**	**7,64,800**	**7,64,800**	**27,09,400**

Research Personnel Budget (Amount in INR) :

Designation	Year-1	Year-2	Year-3	Total
Senior Research Fellow	6,04,800	6,04,800	6,04,800	**18,14,400**

Consumable Budget (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
To purchase chemicals,Solvents, specific reagents and Glass ware	1,00,000	1,00,000	1,00,000	**3,00,000**

Travel Budget (Amount in INR) :

Justification (Inland Travel)	Year-1	Year-2	Year-3	Total
To attend seminars ,approach experts in india	30,000	30,000	30,000	**90,000**

Equipment Budget (Amount in INR) :

Generic Name ,Model No. , (Make)/	Quantity	Spare	Estimated Cost
Rotaevaporator Advance (Aditya) *Rota evaporator is necessary to carried out proposed research work*	1	20 %	**4,00,000**
Magnetic Stirrer 1ml (Remi) *Magnetic stirrer also required to carried out research work*	1	0 %	**15,000**

Contingency Budget (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
For spectral analysis and stationary	30,000	30,000	30,000	**90,000**

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Budget Details

Institution wise Budget Breakup :

Budget Head	Vaagdevi Degree and PG College	Total
Research Personnel	13,39,200	**13,39,200**
Consumables	3,00,000	**3,00,000**
Travel	45,000	**45,000**
Equipment	1	**1**
Contingencies	6,00,000	**6,00,000**
Other cost	0	**0**
Overhead	0	**0**
Total	**22,84,201**	**22,84,201**

Institute Name : *Vaagdevi Degree and PG College*

Year Wise Budget Summary (Amount in INR) :

Budget Head	Year-1	Year-2	Year-3	Total
Research Personnel	4,46,400	4,46,400	4,46,400	**13,39,200**
Consumables	1,00,000	1,00,000	1,00,000	**3,00,000**
Travel	15,000	15,000	15,000	**45,000**
Equipments	1	0	0	**1**
Contingencies	2,00,000	2,00,000	2,00,000	**6,00,000**
Other cost	0	0	0	**0**
Overhead	0	0	0	**0**
Grand Total	**7,61,401**	**7,61,400**	**7,61,400**	**22,84,201**

Research Personnel Budget Detail (Amount in INR) :

Designation	Year-1	Year-2	Year-3	Total
Junior Research Fellow *Required a junior research fellow with stipend 31000/- per month*	4,46,400	4,46,400	4,46,400	**13,39,200**

Consumable Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
chemicals - 200000 per year for three years 600000	1,00,000	1,00,000	1,00,000	**3,00,000**

Travel Budget Detail (Amount in INR) :

Justification (Inland Travel)	Year-1	Year-2	Year-3	Total
to attend seminars, conferences	15,000	15,000	15,000	**45,000**

Equipment Budget Detail (Amount in INR) :

Generic Name ,Model No. , (Make)/ Justification	Quantity	Spare time	Estimated Cost
NA (NA) *NA*	1	0 %	**1**

Contingency Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
Contingency - 200000 per year	2,00,000	2,00,000	2,00,000	**6,00,000**

Overhead Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
NA	0	0	0	**0**

Other Budget Detail (Amount in INR) :

Description/Justification	Year-1	Year-2	Year-3	Total
NA NA	0	0	0	**0**

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Research Papers Published in UGC Enlisted/Scopus Cited Journals

https://www.vaagdevicolleges.com/vaagdevi/adminpanel/uploads/naccuploads/3321-number-of-research-papers_file_1735366064.pdf

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Patents Filed by Faculty members

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

सत्यमेव जयते
GOVERNMENT OF INDIA

Controller General of Patents,Designs and Trademarks
Department of Industrial Policy and Promotion
Ministry of Commerce and Industry

Design Application Details

Application Number:

381443-001

Cbr Number:

203256

Cbr Date:

14/03/2023 11:54:42

Applicant Name:

1. Dr.P.Vijayabaskar 2. Dr. J. Madhusudhanan 3. Dr.G.Vikram
4. Dr.Yuvaraj Sampathkumar 5. Mr.Kaushik Thamilchelvam
6. Dr.Mohana Priya Arumugam

Design Application Status

Application Status:

Design Accepted and Published, Journal No is 49/2023 and Journal Date is 08/12/2023

Back (/DesignApplicationStatus/)

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Welcome T Sahila Sign out

Controller General of Patents, Designs & Trade Marks
CP-2, Sector V, Salt Lake City, Kolkata-700091
Tel No. (091)(033) 23671945-46 Fax No. 033 23671988
E-mail: kolkata-patent@nic.in
Web Site: www.ipindia.gov.in

सत्यमेव जयते

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

G.A.R.6
[See Rule 22(1)]
RECEIPT

Date/Time 27/08/2023

To
T Sahila

20-20 D, Main Road Kinnikannan Vilai
Agasteeswaram Post Kanyakumari

User Code: Sahila

User Name: T Sahila

CBR Detail:

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Remarks
1	393752-001		1000	210741	FORM 1	CYBER SECURITY SMART DEVICE
2	393753-001		1000	210741	FORM 1	BIOFERTILIZER AND BIOCONTROL DEVICE FOR AGRICULTURE
3	393754-001		1000	210741	FORM 1	FLOATING SOLAR POWER PLANT
4	393755-001		1000	210741	FORM 1	Wearable EEG Monitoring Device

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
D-0000063170	Online Bank Transfer	2708230001005	4000.00	1475001020000001

Total Amount : ₹ 4000
Amount in Words: Rupees Four Thousand Only

Received from T Sahila the sum of ₹ 4000 on account of Payment of fee for above mentioned Application/Forms.
* This is a computer generated receipt, hecnce no signature required.

Print

Home

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Name of the Applicant(s):

DR P SAMPATH
DR. U. SRILAKSHMI
DR. V.KANNAN
THAMARAIKANNAN P
DR. K DEVI
DR. HARISH KUMAR BANGA
DR.CH. KISHORE KUMAR

Total Number of Sheets- 7

Sheet No - 1

PERSPECTIVEVIEW

- Novelty resides in the shape and configuration of the **"CYBER SECURITY SMART DEVICE"** as illustrated.
- No claim is made by virtue of this registration in respect of any mechanical or other action of any mechanism whatever or in respect of any mode or principle of construction of the Article.
- No claim is made by virtue of this registration to any right to the exclusive use of the words, letters, numbers, or trademarks appearing in the representation.

Dated this the 25th day of August, 2023

T Sahila [IN/PA-2993]
Agent for the Applicants

SHRIHARSHAN IP ASSOCIATES

393752-001
27 AUG 2023

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

Students Projects

DEPARTMENT OF BOTANY

STUDENT STUDY PROJECT

ON

MICROPROPAGATION OF *TYLOPHORA INDICA*

By

PRESENTED BY **VI SEMESTER STUDENTS**

H.T.No	Name of the student
08622-3304	A. Rajendar
08622-3309	B. Ankitha
08622-3315	D. Saikiran
08622-3320	G. Vamshi
08622-3327	G. Akhila
08622-3329	H. Vennela
08622-3331	J. Harika
08622-3335	K. Nithin
08622-3337	K. Ashwini
08622-3343	M. Ramu

Supervisor

R. BHARGAVI

Department of Botany
Vaagdevi Degree & PG College (A)
Hanamkonda, Telangana

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

DEPARTMENT OF BOTANY

STUDENT STUDY PROJECT

ON

IMPACT OF MINING ON THE HEALTH OF LIVING ORGANISMS

Presented by: V Semester students

08622-3305	A.Megana
08622-3311	B.Rishitha
08622-3319	G.Prasanna
08622-3326	G.Sathish
08622-3330	I.Mona
08622-3338	K.Ravali
08622-3343	M.Ramu
08622-3354	S.Ayesha
08622-3362	V>Anil

Supervisor

Dr SATEESH SUTHARI

Department of BOTANY
Vaagdevi Degree and PG College
Hanamkonda, Telangana

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

DEPARTMENT OF MICROBIOLOGY

STUDENT STUDY PROJECT

ON

SCREEING OF MUTANTS BY UV SURVIVAL CURVE

By

PRESENTED BY **VI SEMESTER STUDENTS**

H.T.No	Name of the student
086-223460	S.SHIVAKUMAR
086-223461	S.HARIPRASAD
086-223462	T.PRAKASH
086-223463	V.NANDINI
086-223464	V.KRISHNA PRIYA
086-223401	A.AISHWARYA
086-223402	A.RAJESH
086-223403	B.ANJAN KUMAR
086-223404	C.SAINADH

Supervisor

syeda ishrath farheen

Department of MICROBIOLOGY

Vaagdevi Degree & PG College

Hanamkonda, Telangana

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

DEPARTMENT OF MICROBIOLOGY

STUDENT STUDY PROJECT

ON

ANTIMICROBIAL ACTIVITY OF SPICES By

Presented by: VI Semester students

086-223406	K.MAHESH
086-223407	M.ABHIRAM
086-223408	MOHAMMED SAMEERA
086-223409	MOHAMMED NIHAILSOHAIL
086-223410	R.SHIVANI
086-223411	R.SUMATHI
086-223412	T.DEEPIKA
086-223413	T.LASYA
086-223414	U.ANIL
086-223415	V.MANVITH

Supervisor

G. Chandrakala

Department of MICROBIOLOGY

Vaagdevi Degree & PG College

Hanamkonda, Telangana

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

DEPARTMENT OF ZOOLOGY

STUDENT STUDY PROJECT

ON

ESTIMATION OF SALINITY (CHLORIDES) OF WATER IN GIVEN SAMPLES

PROJECT SUPERVISOR: Dr. C. PADMAVATI

S.No	H.No	Name of the student	class
1	086223308	BANDARI PRAVALIKA	BZC III YEAR
2	086223309	BHUKYA ANKITHA	BZC III YEAR
3	086223310	BONTHALA NAGARAJU	BZC III YEAR
4	086223311	BUSA RISHITHA	BZC III YEAR
5	086223312	CHINNALA ANANYA	BZC III YEAR
6	086223313	DEVARAJULA KALYAN	BZC III YEAR
7	086223314	DHARAVATH GANESH	BZC III YEAR
8	086223315	DUBYALA SAIKIRAN	BZC III YEAR
9	086223316	EDLA ASRITHA	BZC III YEAR
10	086223317	ERRA RANA PRATHAP	BZC III YEAR
11	086223318	GAJIREDDY RAMADEVI	BZC III YEAR
12	086223319	GAJEELA PRASANNA	BZC III YEAR
13	086223320	GATTU VAMSHI	BZC III YEAR
14	086223321	GILAKATHULA BHAVANI	BZC III YEAR
15	086223322	GODDE ARJUN NIVAS	BZC III YEAR
16	086223323	GUGULOTHU YOCHANA	BZC III YEAR

DETERMINATION OF PH OF SOIL AND WATER

PROJECT SUPERVISOR: J.SANDHYA

17	086223951	BAKKA DIVYA	BTZC III YEAR
18	086223952	BANDARU MANASWINI	BTZ CIII YEAR
19	086223953	GOSANGI VASUNDHARA	BTZ CIII YEAR
20	086223954	GURRAM AKHILA	BTZC III YEAR
21	086223955	KUSURI SATHVIKA	BTZC III YEAR
22	086223956	NEERUDU NAVYA	BTZC III YEAR
23	086223957	RAGHUSALA NIHARIKA	BTZ CIII YEAR
24	086223958	RAKAM ASHWINI	BTZ CIII YEAR
25	086223959	RANGU SHIVAKRISHANA	BTZC III YEAR
26	086223960	SUTHARI ROJASRI	BTZC III YEAR
27	086223961	TALLAPALLI REEMA	BTZ CIII YEAR
28	086223962	VOLADRI VYSHNAVI	BTZC III YEAR
29	086223963	YEDDU SIRI	BTZC III YEAR
30	086223964	YERRA VASAVI	BTZC III YEAR
31	086223965	MADISHETTI VISHNUVARDHAN	BTZC III YEAR

Principal

Vaagdevi Degree & P.G. College

Kishanpura, Hanamkonda