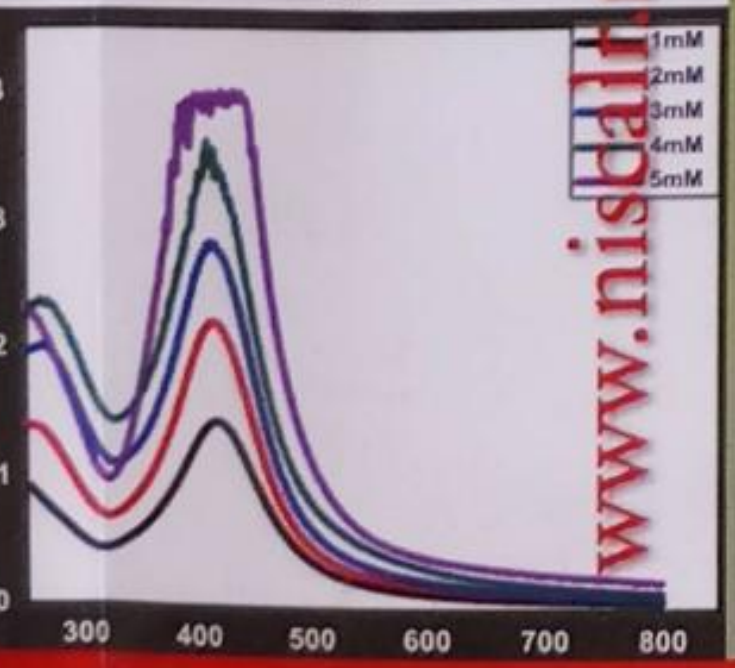
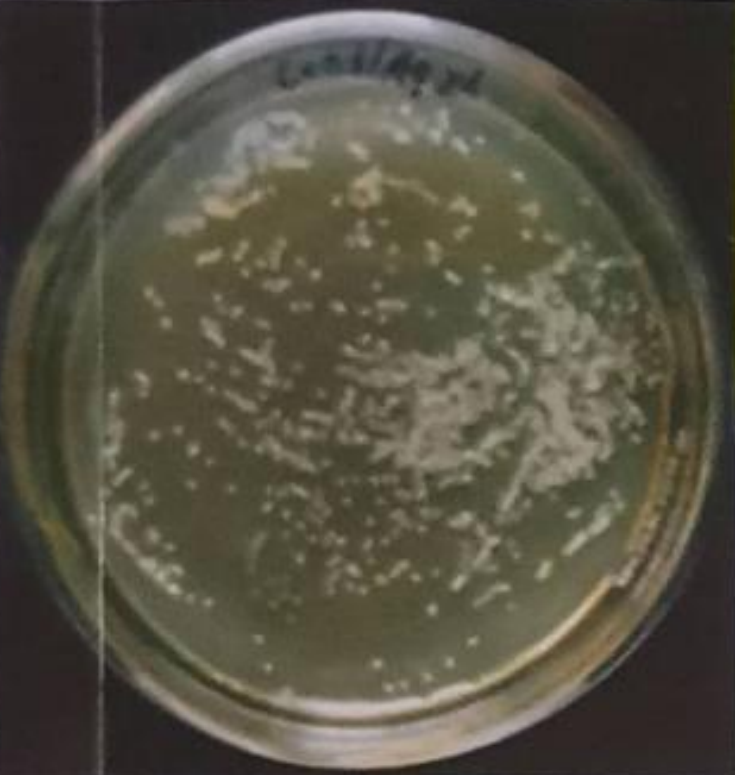


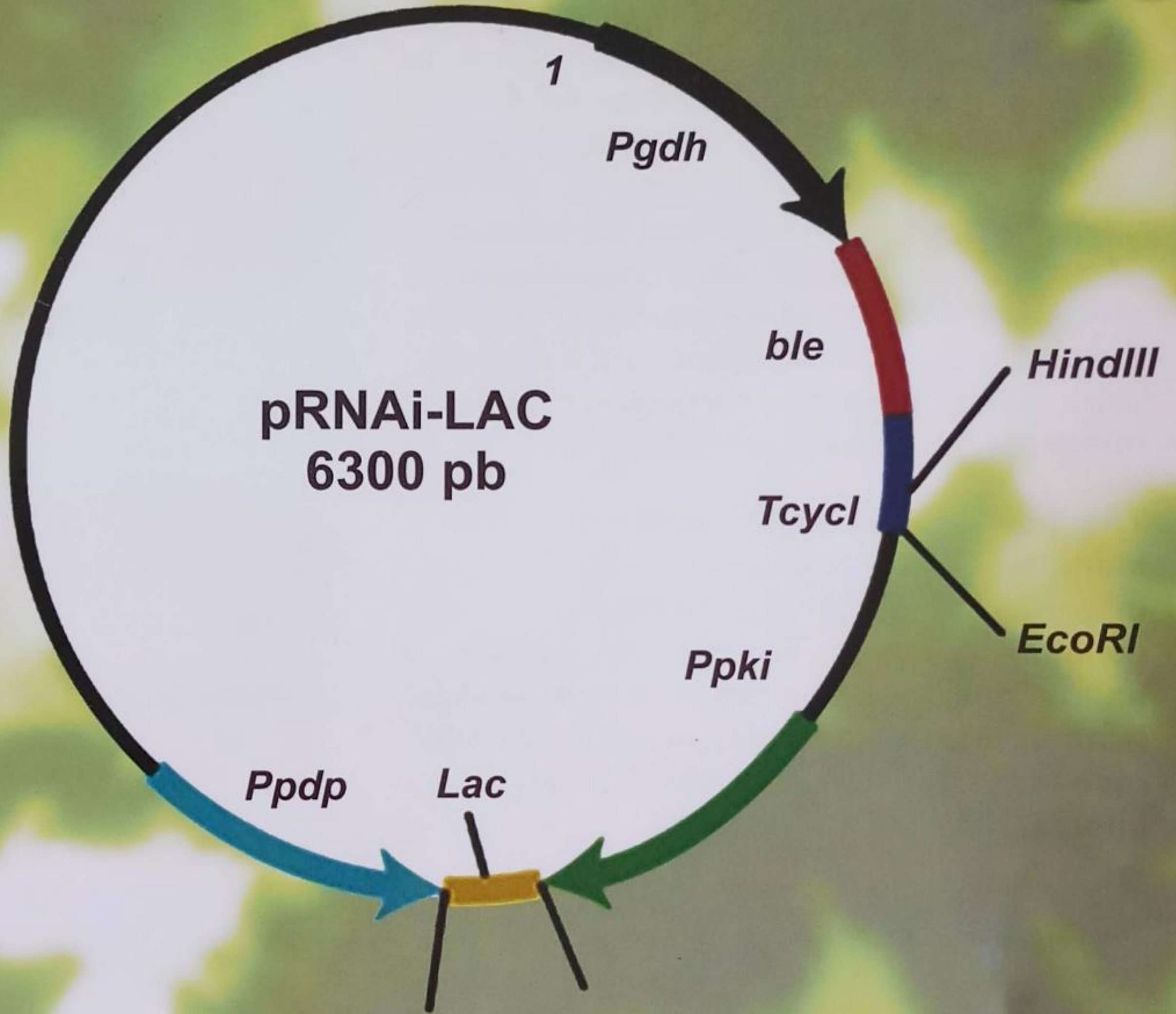


# Indian Journal of Biotechnology

|                           |            |
|---------------------------|------------|
| M loreyi- Nabha-Patiela   | AACATTATAT |
| M loreyi- Muktsar         | .....      |
| M loreyi- Gurdaspur       | .....      |
| M loreyi- Bhadson-Patiela | .....      |
| M loreyi- Nabha-Patiela   | GATGACCAAA |
| M loreyi- Muktsar         | .....      |
| M loreyi- Gurdaspur       | .....      |
| M loreyi- Bhadson-Patiela | .....      |
| M loreyi- Nabha-Patiela   | TTCCTTAAAT |
| M loreyi- Muktsar         | .....      |
| M loreyi- Gurdaspur       | .....      |
| M loreyi- Bhadson-Patiela | .....      |
| M loreyi- Nabha-Patiela   | AATTGTAGAA |
| M loreyi- Muktsar         | .....      |
| M loreyi- Gurdaspur       | .....      |
| M loreyi- Bhadson-Patiela | .....      |



www.niscair.res.in



CSIR-National Institute of Science Communication And  
Information Resources  
New Delhi, INDIA



# Indian Journal of Biotechnology

<http://www.niscair.res.in>

VOLUME 18

CODEN: IJBNA 18(3)(2019)185-284

NUMBER 3

July 2019

ISSN: 0972-5849 (print)

0975-0967 (online)

## CONTENTS

### Perspective

- 10 years after the birth of India's first cloned farm animal, where is buffalo cloning heading 191  
Naresh L Selokar, Monika Saini, Dharmendra Kumar, Rakesh K Sharma and Prem Sing Yadav

### Papers

- Phytochemical investigation and cytotoxic activity of hydro alcoholic fraction of *Trianthema decandra* 193  
Kalpana Gajjala, Ravindernath Aniseti, Jaya Prakash Dodla, Aravind Kumar Rathod
- Characterization of wheat (*Triticum aestivum* L.) genotypes unraveled by molecular markers considering heat stress 204  
Jagdale Mahesh Vasantao, Y K Pankaj, Nilmani Prakash
- A putative heat-responsive transcription factor (TaHD97) and its targets in wheat (*Triticum aestivum*) providing thermotolerance 214  
J P Singh, R R Kumar, S Goswami, G K Rai, A Sakhare, S Kumar, S D Singh, S Bakshi, S J Jamhulkar, Sindhu Sareen, G P Singh, V Chinnusamy, and S Praveen
- Characterization of maize genotypes using microsatellite markers associated with QTLs for kernel iron and zinc 224  
S K Jaiswal, Vignesh Muthusamy, Firoz Hossain, Rajkumar U Zunjare, Rajat Goswami, Rashmi Chhabra, Gulab Chand, Sweta Dosad, Rakesh Bhowmick, Satish K Guleria, Arunava Pattanayak and Hari S Gupta
- Estimation of genetic diversity, structure and trait association of winged bean (*Psophocarpus tetragonolobus* (L) DC., genotypes through AFLP and ITS markers 235  
Chandra Sekhar Mohanty, Vinayak Singh, Priya Gupta, Anukool Srivastava, Rojalin Pattanayak, Vandana Jaiswal, Nilamani Dikshit
- Polymerase chain reaction and real-time PCR parameters for amplification of hydrolytic microorganisms and hydrogenotrophic methanogens in anaerobic bioreactor 246  
J Jayamuthunagai, B Bharathiraja, I Aberna Ebenezer Selvakumari and Sunita Varjani
- Bioethanol production from peahull aqueous extract as a novel substrate using *Saccharomyces cerevisiae*: Process evaluation using data modelling and mathematical optimization 253  
Divya Saxena, Anupama Singh, Ranjna Sirohi



- Mathematically optimized production, purification and characterization of penicillin G acylase from isolates AA17A and AA17B: An industrial biocatalyst for production of aminopenicillanic acid a core moiety of different penicillins 260  
Abhishek Ajamani, Rajesh Kumar, Prachi Bhargava and Siddharth Vats
- Response surface and artificial neural network simulation for process design to produce L-lysine by *Corynebacterium glutamicum* NCIM 2168 269  
Ashutosh Kumar Pandey, Kritika Pandey, Ashok Pandey, Vivek Kumar Morya and Lalit Kumar Singh
- Instructions to Contributors** 280