Annexure IV

Format for Online Annual/Final Report

1. Project Title: Conservation of Animal Genetic Resources
2. Sanction No.:
3. Date of Start: 15.06.2015
4. Date of Termination: 31.03.2017
5. Actual Location(Location of research scheme to be carried out) NBAGR, Karnal
   BAIF, Pune
6. Principal Investigator (CV to be provided)
   - Name: M S Tantia
   - Designation: Principal Scientist
   - Division/Section: Network Section
   - Address: NBAGR, Karnal 132001
7. Co-Investigator
   - Name: S B Gokhale
   - Designation: Director, Research
   - Division/Section:
   - Address: BAIF, Uralikanchan (Maharashtra)
8. Principal Investigator
   - Name: P K Vij
   - Designation: Principal Scientist
   - Division/Section: Livestock Information Management
   - Address: NBAGR, Karnal 132001
9. Principal Investigator
   - Name: R A K Aggarwal
   - Designation: Principal Scientist
   - Division/Section: Animal Genetic Resources
   - Address: NBAGR, Karnal 132001
10. Principal Investigator
    - Name: Ms Rekha Sharma
    - Designation: Principal Scientist

Division/Section: Network Section

Address: NBAGR, Karnal 132001

11. Duration of Project: 3 years
12. Total amount sanctioned: (in case of extension) 30 lakh
13. Total amount spent: 29.4
14. Result of Practical/Scientific Value: (200 chrs)

    Fifteen bulls of Khillar, Dangi, Rathi and Nagori breeds of cattle have been procuredand shifted to BAIF semen collection center. These bulls are being kept in quarantine and after rearing to maturity semen from these would be preserved. Somatic cell conservation facility has been created and various techniques/protocols of somatic cell culture have been standardized.

15. Papers Published: (300 chrs)

    (i) Papers published in peer reviewed journal (NAAS rating may be given)

    Nil

    (ii) Papers presented at scientific meetings:

    1. Selection of culture media for increased growth potential of buffalo skin fibroblasts.
    2. Enhanced isolation of bubaline fibroblasts by *in vitro* serial transfer of skin fibroblasts.

    (i) Manuscripts under preparation:

16. Patents and products developed: (300 chrs)

17. Detailed Progress Report (to be annexed): (400 chrs)

    Comprehensive survey was conducted in the breeding tract of Khillar, Dangi, Rathi and Nagori cattle to identify and select ideal bull calves, on the basis of phenotypic characteristics and dam's performance. Fifteen bull calves were selected and tested for the absence of Tuberculosis, Brucellosis and John's Disease before shifting to BAIF semen collection centres and kept in quarantine. Their growth and physical fitness is being monitored and after raising them to maturity, semen will be collected and preserved for future use.

For somatic cell banking, cell culture procedure was standardized to successfully recover primary fibroblasts from bubaline ear margin tissue. These cells were cryopreserved, thawed and karyotyped to test the efficacy of protocol. Three different media i. e. DMEM, DMEM+Ham's F12 (1:1) and human fibroblast specific medium (HiFibroXL^{TM}) were tested for their growth potential on Buffalo skin fibroblasts (BSFs). DMEM+Ham's F12 (1:1) was observed as the most efficient media for bubaline fibroblast growth *in vitro* as cells followed typical Sigmoid shape growth curve with all the three phases (Lag, log and stationary).

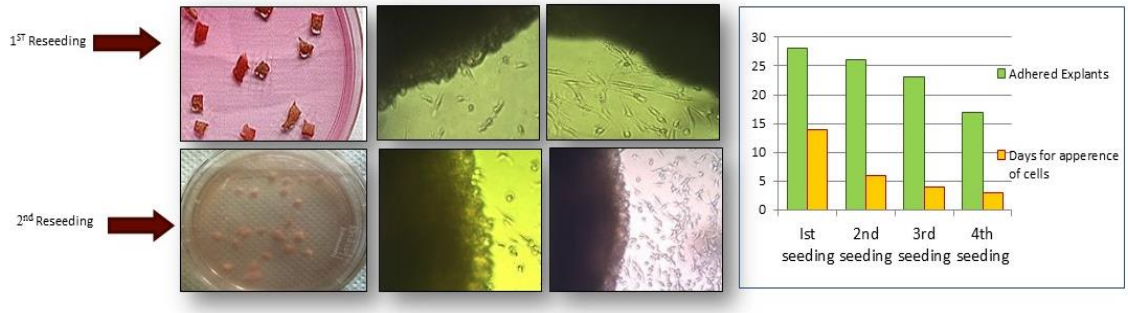

Fig. Generation of primary fibroblasts from skin explants after reseeding

These results demonstrate the capacity to increase several folds the number of early passage cells obtained from bubaline explants. All these findings will lead towards growing bubaline fibroblast cells in higher numbers and with high proliferation potential thus increasing the amount of material available for conservation of endangered buffalo breeds.

18. Signature:

Name:

Designation:

Principal Investigator:

Date Director or Head of Institution/Station:

19. Comments of the Lead Centre Platform Coordinator:

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20. Remarks of the SMD: