



शिवाजी कॉलेज
(दिल्ली विश्वविद्यालय)
Shivaji College
(University of Delhi)



NAAC ACCREDITED "A" GRADE COLLEGE

संदर्भ सं० / Ref. No. SH/Admn/2298/23

दिनांक / Dated 03.09.2023

ORDER

Subject: Financial Sanction of the Minor Research Project MRP/2022-2023/0005 entitled **"Comparative analysis of the effects of dietary supplements on *Drosophila melanogaster*"** under the supervision of Dr Jayita Thakur, Department of Biochemistry, Shivaji College, New Delhi 110 027 and Dr Usha Yadav, Department of Biochemistry, Shivaji College, New Delhi 110 027.

1. Sanction of Shivaji College is hereby accorded to the grant for above mentioned project at a total cost of **INR 30,000/-** (Rupees Thirty Thousand Only) for a duration of 12 months.

The items of expenditure for which the total allocation of **INR 30,000/-** has been approved are given below:

Sl. No.	Budget Head	Amount (in INR)
1.	Chemicals	21,000.00
2.	Glassware's	4,000.00
3.	Contingency	5,000.00
	Total	30,000.00

2. The sanction has been issued to with the approval of the competent authority vide Diary No. P/5903/23 dated 23.02.2023.

3. Sanction of grant is subject to the conditions as detailed in the Guidelines of Minor Research Project under intramural scheme of the Shivaji College available at www.shivajicollege.ac.in

4. Proper stock register should be maintained by the Principal Investigators.

5. The file number MRP/2022-2023/0005 should be mentioned in all communications arising from the above project.



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6. Utilization Certificate (UC) and Statement of Expenditure (SE) dually verified by PI's, Administrative Office (Accounts) and Principal of the college must be submitted after 12 months from the date of start of the project.
7. Midterm report on the work done must be submitted by the Principal Investigator after the completion of six months from the date of start of the project.
8. The project completion report should be submitted after the completion of the project, which will be evaluated by the eminent expert in the field and the students trained in the project should present the outcome of the project work in annual festival "SRIJAN" to be organised by the College Research & Innovation Cell.
9. The Principal Investigators must acknowledge the support provided to them in all publications, patents and any other output emanating out of the project funded by the Shivaji College.
10. General Finance Rules (GFR) to be followed for procurements.

शिव कुमार साहदेव

Prof. (Dr) Shiv Kumar Sahdev
Officiating Principal

Copy forwarded for information and necessary action to:

1. Dr Jayita Thakur (Principal Investigator)
2. Dr Usha Yadav (Principal Investigator)
3. Convener, College Research & Innovation Cell, Shivaji College
4. Administrative Officer (Accounts)
5. Administrative Officer (Admin.)

1. Project Title: Effects of Nutritional Supplements on <i>Drosophila melanogaster</i> .	File No.: MRP/2022-2023/0005
2. PI (s) (Name): Dr. Jayita Thakur, Dr. Usha Yadav	Department: Department of Biochemistry, Shivaji College, University of Delhi

PICTURES



Figure. A) Picture depicting the Preparation of food, B) Picture of the supplement used, C) Picture depicting student working in the laboratory, D) & E) Picture taken while etherizing the flies F) Picture

taken while etherizing the flies, G) *Drosophila melanogaster* culture vials, H) & I) Picture taken while performing climbing assay

LIST OF STUDENTS

Summary of roles/responsibilities for all associated student(s):

(Maintenance of wild type culture, standardization of dosages of dietary supplements which affect parameters of *Drosophila* and synergistic effect of dietary supplements will be evaluated by all the students)

S. No.	Name of the Student	Course and Department	Contact No. & Email Address	Roles/Responsibilities
1.	Sayena Simron	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06055	9310503825 sayena.simron@gmail.com	Comparison of the dimensions of late 3rd instar larval salivary glands of <i>Drosophila</i> Fecundity assay as a readout for the effect of dietary supplements on <i>Drosophila</i>
2.	Sanjana Gupta	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06007	9910965710 sanjanagupta2161@gmail.com	
3.	Anusha	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06034	7527884085 anushamonga04@gmail.com	Assaying the effect of dietary supplements on longevity in <i>Drosophila</i>
4.	Sahil Anand	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06031	8587921040 sahilanand8587@gmail.com	
5.	Shivangi Aggarwal	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06030	8800709241 agg.changi@gmail.com	Assaying the effect of dietary supplements on longevity in <i>Drosophila</i>
6.	Vandana	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06047	9289569588 vandanathakur242421@gmail.com	
7.	Debdatta Chatterjee	B.Sc. (H) Biochemistry Dept- Biochemistry Sem IV Roll No. 22/06009	9748953403 raichatterjee2001@gmail.com	Fecundity assay as a readout for the effect of dietary supplements on <i>Drosophila</i>
8.	Khushi	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06051	8595801014 khushinegi99@gmail.com	
9.	Ayush Sachan	B.Sc. (H) Biochemistry Dept- Biochemistry Sem VI Roll No. 21/06015	6386214363 ayushsachan17@gmail.com	Negative geotaxis assay for assessment of locomotor function in adult <i>Drosophila</i>
10.	Tushar Gupta	B.Sc. (H) Biochemistry Dept- Biochemistry Sem IV Roll No. 22/06032	7268991181 8005149602 06tushar04@gmail.com	

LEARNING OUTCOME

1. Some nutritional supplements appear to have higher intergenerational persistence than others. This may be attributed to epigenetic modifications or the effect of the microbiome.
2. None of the dosages tested in this study show increased mortality.
3. The effect of Shilajit has not been studied using *Drosophila melanogaster* as a model organism. Since fecundity and locomotion are both parameters that can be extrapolated from the fly model, the data obtained is interesting for further research.
4. While almost all the supplements studied have been reported to have neuroprotective or neuromodulatory properties, they did not uniformly impact locomotion. This indicates that divergent molecular mechanisms are involved.
5. It was found that a combination of Shilajit and Ashwagandha almost doubled their efficacy in increasing fecundity. Surprisingly, it was observed that the combination of Shilajit and Ashwagandha reduced efficacy in locomotion. Ashwagandha was found to be more efficacious in improving locomotion, when compared to Shilajit alone or when in combination with Shilajit. This indicates that there may be nutrient interaction between the supplements and it is not advisable to consume random combinations of supplements without the consultation of medical practitioners.
6. Most of the studies carry out a comparative exploration of 1 or 2 supplements. The current study compares and contrasts 5 different supplements and explores their impact on fecundity, locomotion, and generation time.
7. This study observes the intergenerational persistence of *Panax ginseng*, wherein lower concentrations are required in the next generations to give similar effects on fecundity. This appears to indicate that the consumption of supplements by individuals may not only impact their own health parameters but also persist in their offspring, requiring them to consume lesser doses to give similar improved status. Further studies are required to explore this.