Decree of the Rector n. 1257 of 29/11/2023
Competition for awarding 1 research grant at the University of Udine

DISCLAIMER:
The official and legally binding call for applications is in Italian only.
This document cannot be used for legal purposes and is only meant to provide information in
English on the call for applications (Decree of the Rector n. 1257 of 29/11/2023). Please refer to
the official call published on: https://www.uniud.it/it/albo-ufficiale

Any change and integration will be made available on the above mentioned web page.
Therefore, no personal written communication regarding the examination date and/or
competition results shall be provided to applicants.

Annex 1

Competition announcement for the assignment of 1 research grant at the University of Udine,
entitled “Effects of the nutraceutical properties of edible insects’ derivatives in reared finfish
species” SSD: AGR/20 (principal investigator, Francesca Tulli)

Art. 1
A selection procedure is hereby launched for the award of 1 research grant at the University of Udine,
as identified in Attachment A which constitutes an integral part of the present announcement.
The research grant is linked to the research project and is subject and conditioned upon the relative
funding.
The fellowship may be renewed, in compliance with Art. 22, Law No. 240 of 30 December 2010 (as in
the text in force before the implementation of the Conversion Law of the D.L. 36/2022, L. 79/2022),
Law No. 11 of 27 February 2015, and the current regulations of the University of Udine for awarding
research grants, issued with the Rector’s Decree No. 182 of 31 March 2021. The renewal is subject to
the scientific coordinator’s positive assessment of the researcher’s activities, an adequate scientific
rationale, and a corresponding financial covering.

The research fellowship does not give rise to any right with regards to accessing University posts.

Any personal communication to candidates related to this selection will be sent exclusively to the email
address indicated when registering for the selection, as mentioned in Art. 5.

Art. 2
The research grant described in this competition announcement and the required qualifications to
apply for the position are identified in Attachment A. The lack of the admission requirements leads to
the automatic exclusion from the competition procedure.

Possession of a PhD or equivalent degree obtained abroad or, only for the interested areas, of a
medical specialization accompanied by an adequate scientific production, constitutes a preferential
qualification for awarding the research fellowship of this selection, if it has not been provided as a
mandatory requirement.

For the only purpose of the admission to the competition, the Examining Board (Art. 7) shall assess the
equivalence of the qualification obtained abroad, except for the evaluation of the medical specialization

RESEARCH SERVICES AREA
Research Training Office
Department Head: Sandra Salvador
Procedure Supervisor: Sandra Salvador
Procedure Compiler: Francesca Mion
qualification to which Article 38 of the Legislative Decree 165/2001 and subsequent modifications and additions, and EU regulations on the matter, shall be applied.

The Examining Board will proceed to the evaluation of the qualification obtained abroad according to the documentation attached to the application form. The Examining Board may exclude the candidate if the submitted documentation does not provide sufficient information for the assessment. Therefore, applicants must enclose all the documentation in their possession relating to their qualification in order to provide the Examining Board with sufficient information for assessment.

Candidates holding a qualification issued by a European Research Area country, if successful, must submit, if not already attached to the application form one of the following options:
- Supplement Diploma in English issued by the competent University.
- CIMEA Certificate of comparability of the foreign qualification, issued by CIMEA (Information Centre on Academic Mobility and Equivalence) via the "diplome" service at https://cimea.diplo-me.eu/udine/#/auth/login

Candidates holding a qualification issued by a non-European Research Area country, if successful, must submit, if not already attached to the application form one of the following options:
- Declaration of the on-site value of the qualification and the certificate relating to the degree with examinations and grades. A certificate in a language other than Italian or English must be accompanied by an official translation into one of these languages (certified by the competent diplomatic-consular authority or certified by a court in Italy).
- CIMEA Certificate of comparability of the foreign qualification, issued by CIMEA (Information Centre on Academic Mobility and Equivalence) via the "diplome" service at https://cimea.diplo-me.eu/udine/#/auth/login

If the Supplement Diploma or the statement/attestation of comparability are not available when signing the contract, the applicant must demonstrate that he/she has requested the documentation and submit it as soon as possible.

Any exclusion from the selection procedure due to lack of eligibility requirements, absence of required documents, failure to sign the selection application or submission of the selection application in a manner different from what is provided for in this call for applications will be communicated to applicants exclusively at the email address indicated in the application form.

Art. 3

The research grant referred to in this call for applications cannot be awarded:

a. to employees of Universities and the entities referred to in Article 22, section 1, of Italian Law no. 240 of 30 December 2010 (in the text prior to the reform introduced by Law no. 79 of 29 June 2022);

b. to those who have already been awarded research grants pursuant to Italian Law no. 240 of 30 December 2010 (prior to the reform introduced by Law no. 79 of 29 June 2022) for the maximum period provided by law, even if not continuously, excluding the period in which the grant was used in conjunction with the doctorate, up to the legal term of the relative course;

c. to those who have already benefited from research grants and fixed-term researcher contracts provided for, respectively, in Articles 22 and 24 of Italian Law no. 240 of 30 December 2010 (in the text prior to the reform introduced by Law no. 79 of 29 June 2022), for a total of 12 years, even if not consecutive;

d. to anyone who has a degree of kinship or affinity, up to and including the fourth degree, with:
   - the Rector, the Director General or a member of the Board of Directors of the University of Udine;
- the scientific supervisor or a professor/researcher belonging to the department or organisation hosting the research grant in question.

The research grant provided for in this call for applications cannot be combined:

a) with scholarships of any kind, except for those granted by Italian or foreign institutions to supplement, by means of stays abroad, the fellow's training or research activities;
b) with other research grants;
c) with an employment relationship, even if part-time, without prejudice to the relevant provisions for employees of public administrations.

The grant awarded under this call for applications is also incompatible with simultaneous attendance at university degree courses, either Bachelor's degree or Master’s degree courses, research Doctorates with scholarships and medical specializations, in Italy or abroad.

Art. 4

Applicants must enclose with their application, under penalty of exclusion, the following documents:

a) their professional scientific CV, highlighting the candidate's aptitude for carrying out and implementing the research project (Attachment A);
b) their identity card, their passport or any other identification document¹;
c) (for candidates with a foreign qualification only) certification or self-certification of both the academic qualification required for the admission to the selection, and of the exams (with evaluation) took during the period of study abroad, and of any other document that can be useful to the evaluation of the degree by the Examining Board.

Applicants can attach to the application, publications and any other certification considered useful to demonstrate the qualification based on the research program (Attachment A) and to certify any research activity accomplished at public or private institutes (indicating the starting and ending date and the duration).

The documents and qualifications mentioned above must be submitted in Italian or English. Those that are not as requested will not be evaluated. Documents originally written in a language other than Italian or English must come with a translation in Italian or English, that the candidate will do on its own responsibility. The translation can be an abstract concerning the thesis.

Italian and Community candidates wishing to submit qualifications referring to conditions and facts attested by Public Administrations must proceed exclusively with self-certification. Non-EU citizens legally residing in Italy may self-certify only data that can be verified or certified by Italian public bodies. They may also use declarations in lieu when provided for by an international convention between Italy and the declarant's country of origin. Non-EU citizens not residing in Italy cannot self-certify.

Only the qualifications possessed by the candidate on the date the application form is submitted and submitted in accordance with the procedures set out in Article 5 will be assessed.

Failure to submit mandatory documents provided for in this article will constitute grounds for exclusion from the selection.

¹ Please be aware that the residence permit is not an identification document.
Art. 5

The submission of the applications for the present call starts on December 7, 2023 at 2:00 pm (Italian time) and ends on February 15, 2024 at 2:00 pm (Italian time).

The application to take part in the selection must be completed, under penalty of exclusion, using the appropriate online procedure, available at the link https://pica.cineca.it/

The procedure involves an applicant registration step, for those who do not already have an account, and then an application completion step.

Once completed, the online application must be signed in the manner described in the online procedure (manual signature with attached identity document or digital signature), under penalty of exclusion from selection. The application does not have to be signed if you access the above-mentioned online procedure using your SPID ID.

The qualifications referred to in Article 4 must be attached to the application in .pdf format. Individual .pdf files may not exceed 30MB.

The application for participation in the selection is automatically sent to the University of Udine with the definitive closing of the online procedure.

The University Administration:
- is not responsible if it is impossible to read the submitted documentation in electronic format due to damaged files;
- shall not accept or take into consideration qualifications or documents received in paper form or by any means other than what is specified in this article.

Reference to documents or publications already submitted in connection with other competitions is not allowed.

The Administration is not responsible for any missing document or communication because of inaccurate indication of residence and/or address submitted by the candidate during the application. Also, the Administration is not responsible if the candidate has not communicated changes in this information, or has communicated them too late. The Administration is also not responsible for any postal or telegraphic problems not attributable to the Administration itself.

Applicants are advised not to wait until the last few days before the closing date to submit their application. The University accepts no responsibility for any malfunctions due to technical problems and/or overloading of the communication line and/or application systems.

Art. 6

The selection procedure is held in accordance with the modality indicated in Attachment A.

The test will aim to assess the general preparation, experience and aptitude for research of the candidate. It will consist in the evaluation of the professional scientific curriculum, of the publications and qualifications presented, and of the interview, where foreseen.
Art. 7
The Examining board for the competition is identified in Attachment A of the present competition announcement, of which it is an integral part.

At its first meeting, the Examining board shall appoint its President and Secretary, and establish the criteria and methods for evaluating the qualifications and the interview, where foreseen.

The results of the qualifications assessment must be disclosed to applicants during the interview, where foreseen.

The Examining board can award a maximum of 100 points (one hundred out of one hundred) to the selection.

At the end of the evaluation procedure, the Examining board shall formulate the general merit list based on the overall score of each candidate, and draw up the minutes of the whole competition procedure.

Based on the ranking list, the assignment is awarded to candidates who have obtained a minimum overall score of 70/100 (seventy out of one hundred).

The Examining board's judgement is final.

The ranking list will be made public exclusively through publication on the University's official website.

Applicants will not be notified of the outcome of the evaluation.

Those who do not declare their acceptance of the research grant and do not present themselves at the research centre within the deadline communicated by the latter, even if not formally, shall lose the right to receive it. Exceptions to this term will only be granted in cases of documented force majeure.

Art. 8
The research activity cannot be started before signing the contract defining the terms and conditions of the collaboration.

The activity covered by the research grant must have the following characteristics:

a) it must be carried out as part of the research programme covered by the grant and not be a merely technical support to it;
b) it must have a close connection with the realization of the research program for which the winner of the grant has been awarded the contract;
c) it must be continuous and, in any case, temporally defined, not merely occasional, and in coordination with the overall activity of the University;
d) it must be carried out autonomously, solely within the limits of the programme prepared by the programme supervisor, without predetermined working hours.

The researcher is required to submit a detailed written report on the work carried out and the results achieved, accompanied by the opinion of the scientific supervisor, to the reference organisation at the intervals set out in the contract. The researcher must also submit interim reports and timesheets, if requested by the reference organisation.
Either the fellow or the reference organisation may withdraw from the contract. The reference organisation may terminate the contract not only in the cases referred to in Article 9, sections 2 and 3, of the "Internal rules for awarding research grants pursuant to law 240 of 30 December 2010" of the University of Udine, but also in the event the research project and therefore the financial coverage on which the research grant is based cease to exist.

Art. 9
The following legal dispositions shall apply to the grant referred to in this call for applications:
- for tax matters, the provisions of Article 4 of Italian Law no. 476 of 13 August 1984, as subsequently amended and supplemented;
- for social security matters, the provisions of Article 2(26) et seq. of Italian Law no. 335 of 8 August 1995, as subsequently amended and supplemented;
- for mandatory maternity leave, the provisions of the Italian Ministerial Decree of 12 July 2007;
- with regard to sick leave, the provisions of Article 1(788) of Italian Law no. 296 of 27 December 2006 and subsequent amendments.

During the period of mandatory maternity leave, the allowance paid by INPS according to Art. 5 of the Italian Ministerial Decree of 12 July 2007 is supplemented by the University up to the full amount of the research grant.

The grant will be paid in monthly instalments.

Art. 10
The data collected as part of the procedure referred to in Art. 5 are necessary to properly manage the selection procedure, for any subsequent management of the research grant and for purposes related to managing services provided by the University. The University of Udine is the Data Controller. At any time, the data subject may request access, rectification and, depending on the University's institutional purposes, cancellation and restriction of processing or oppose the processing of their data. The data subject can always lodge a complaint with the Italian Data Protection Authority. The complete disclosure is available on the University of Udine website in the "Privacy" section, accessible from the home page www.uniud.it Direct Link: https://www.uniud.it/it/pagine-speciali/guida/privacy

Art. 11
For all matters not expressly mentioned in this call for applications, refer to the regulations in force on the subject cited in the introduction and to the "Internal rules for awarding research grants pursuant to Italian Law no. 240 of 30 December 2010" of the University of Udine, issued by Rector's Decree no. 182 of 31 March 2021.

Art. 12
The procedure supervisor is Dr Sandra Salvador, Head of the Research Services Area of the University of Udine.

The Responsible office at the University of Udine is “Area Servizi per la Ricerca - Ufficio Formazione per la Ricerca", via Mantica n. 31 - 33100 Udine, Italia.

To request information about the call for applications, please complete the following form available on the University of Udine website: https://helpdesk.uniud.it/SubmitSR.jsp?type=req&accountId=universityofudine&populateSR_id=42105
Responsabile scientifico della ricerca / Principal investigator:

Nome e cognome / Name and surname: Francesca Tulli
Qualifica / Position: Professore associata / Associate Professor
Dipartimento / Department: Scienze agroalimentari, ambientali e animali / Agricultural, Food, Environmental and Animal Sciences
Area MUR / Research field: 07 – Scienze agrarie e veterinarie
Settore concorsuale e settore scientifico disciplinare / Scientific sector: 07/G1; AGR/20 – Zooculture

Titolo dell’assegno di ricerca / Topic of the research fellowship “assegno di ricerca”:

I bandi sono consultabili dal sito dell’Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Valutazione delle proprietà nutraceutiche di derivati da insetti nell’alimentazione di specie ittiche allevate.

Text in English:

Effects of the nutraceutical properties of edible insects’ derivatives in reared finfish species.

Obiettivi previsti e risultati attesi del programma di ricerca in cui si colloca l’attività dell’assegnista di ricerca / Foreseen objectives and results of the research programme performed by the research fellow "assegnista di ricerca":

I bandi sono consultabili dal sito dell’Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Abstract del progetto


Obiettivi del progetto

Il cambiamento e l’innovazione necessari per soddisfare la domanda presente e futura di prodotti di origine animale in modo sostenibile fanno considerare gli insetti un’interessante fonte proteica per l’alimentazione animale in sostituzione di ingredienti in competizione con l’uso umano diretto o materie prime di origine animale soprattutto per le specie di interesse acquaculturale, ma con prospettive interessanti anche per l’alimentazione umana. L’obiettivo specifico è valutare le nuove fonti proteiche alternative derivate da insetti e prodotte presso le strutture dell’Ateneo per il loro valore biologico e alcune delle proprietà nutraceutiche di nuovi composti bioattivi ad esse associate con prove condotte in vivo utilizzando trote e/o branzini come modello complesso.
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<td>Descrizione del progetto</td>
<td>Su derivati dall’allevamento di <em>Tenebrio molitor</em> che risultino promettenti per resa, caratterizzazione chimica e safety, verranno condotti studi <em>in vivo</em> per la stima della digeribilità apparente della proteina capitalizzando le competenze e le strutture sperimentali per l’acquacoltura in capo al Dipartimento con l’obiettivo di definirne il valore biologico per disegnare formulazioni mangimistiche sostenibili, che soddisfino le esigenze nutrizionali di specie ittiche carnivore. Verrà altresì testato l’effetto di composti bioattivi presenti in alcune fonti proteiche innovative sulla risposta fisiologica di specie ittiche quale modello animale complesso prendendo in considerazione bio-markers pro e/o antinfiammatori e di stress ossidativo. Nello specifico, la funzionalità e l’integrità del digerente rispetto alle nuove fonti proteiche da insetto o ai composti bioattivi da esso derivati, verrà studiata lungo il tratto gastrointestinal, mediante approcci omici e convenzionali, considerando l’espressione e/o l’attività di specifici enzimi coinvolti nei processi digestivi ed assorbitori e di quelli coinvolti nel mantenimento dell’omeostasi intestinale.</td>
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<tr>
<td>Possibili potenzialità applicative</td>
<td>Lo studio della biodisponibilità e la validazione <em>in vivo</em> di composti bioattivi da derivati da insetti favorisce lo sviluppo di functional feeds nell’industria mangimistica per l’acquacoltura e la produzione, estrazione e recupero da ingredienti innovativi delineando processi produttivi sostenibili sotto il profilo economico ed ambientale. Attualmente, la produzione di insetti è ancora molto limitata rispetto alla possibile quota di mercato. Oltre ai benefici ambientali legati al loro allevamento su rifiuti organici, alla loro elevata efficienza di conversione del substrato/mangime e alle loro basse emissioni di gas clima alteranti e utilizzo del suolo, la produzione di insetti può anche avere impatti sociali ed economici positivi attraverso la creazione di nuove imprese e posti di lavoro.</td>
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## Abstract

The "Cibiamo" university strategic project aims to select and characterize some alternative protein sources from primary production. Considering aquaculture in the framework of the circular bioeconomy is a strategic and resilient way forward. The use of products derived from insect larvae in the feed sector represents an excellent example of a circular economy. The selected protein sources derived from insects will be evaluated in relation to their technological functionality and bioavailability of nutrients as well as nutraceutical properties in order to use them in the feeding of fish species, as an animal model in a One Health perspective.

## Objectives of the project

The change and innovation required to meet the present and future demand for animal products in a sustainable way leads to insects being considered an interesting protein source for animal feed to replace ingredients competing with direct human use or raw materials of animal origin especially for species of aquaculture interest, but also with interesting prospects for human nutrition. The specific objective is to evaluate the new alternative protein sources derived from insects and produced at the University facilities for their biological value and some of the nutraceutical properties of new bioactive compounds associated with them with tests conducted in vivo using trout and/or sea bass as a complex model.

## State of the art

Insects are one of the most promising protein sources for feed production [4]. Recently, the European Commission has authorized the use of insect meals in feed for aquaculture [Reg. (EU) 2017/893] making possible the use of insect-derived processed animal protein (PAP) for farmed fish. Insects are generally high in protein (30–68% dry matter) with well-balanced amino acid profiles. Furthermore, they are promising as a fat/energy source being rich in lipids (about 10 to 30% of dry matter), although their fatty acid profile is highly chain fatty acid profile. Research in Veterinary Science 149: 51-59 https://doi.org/10.1016/j.rvsc.2022.06.007.


variable [2] and they can also be considered a good source of vitamins (especially vitamin B12) and bioavailable minerals, especially iron and zinc [5]. Some studies have attributed to chitin, as constitutive component of the exoskeleton of insects, immunostimulant properties and beneficial effects in the modulation of the microbiota and intestinal function also of fish [1,6], however its presence negatively affects the digestibility of nutrients and/or the bioavailability of feed, resulting in impaired growth performance of fish [3].

Project description

From *Tenebrio molitor* breeding derivatives which are promising in terms of yield, chemical characterization and safety, in vivo studies will be carried out to estimate the apparent digestibility of the protein by capitalizing on the skills and experimental structures for aquaculture headed by the Department with the objective of defining its biological value to design sustainable feed formulations that meet the nutritional needs of carnivorous finfish species. The effects of bioactive compounds present in insects derivatives on the physiological response of fish species as a complex animal model will be tested, taking into consideration pro- and/or anti-inflammatory and oxidative stress bio-markers. Specifically, the functionality and integrity of the digestive system with respect to the innovative ingredient or to the bioactive compounds derived from it, will be studied along the gastrointestinal tract, by means of conventional and omic approaches, considering the expression and/or activity of specific enzymes involved in digestive and absorptive processes and those involved in maintaining intestinal homeostasis.

Possible application potentialities

The study of nutrient bioavailability and in vivo validation of bioactive compounds from insect derivatives foster the development of functional feeds in the feed industry for aquaculture and the production, extraction and recovery of innovative ingredients outlining production processes that are economically and environmentally sustainable. Nowadays, insect production is still very limited compared to the possible market share. In addition to the environmental benefits related to their rearing on organic waste, their high substrate/feed conversion efficiency, and their low emissions of climate-altering gases and land use, insect production can also have positive social and economic impacts through the creation of new businesses and jobs.

References


Per sostenere il colloquio i candidati devono esibire un valido documento di riconoscimento. / Candidates must come to the interview with a valid identity document.

Eventuali variazioni saranno rese note esclusivamente mediante pubblicazione all’albo ufficiale on line dell’Ateneo / Any change will be made public solely through publication on the University web site http://web.uniud.it/ateneo/normativa/albo_ufficiale

**Commissione giudicatrice / Examining Board:**

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<th>Nome e Cognome</th>
<th>Qualifica</th>
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<td><strong>Membri Effettivi / Permanent members</strong></td>
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<tr>
<td>Gloriana Cardinaletti</td>
<td>RU</td>
<td>AGR/20</td>
<td>Università degli Studi di Udine</td>
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<td>Donatella Volpatti</td>
<td>PA</td>
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<td>Concetta Maria Messina</td>
<td>PA</td>
<td>AGR/20</td>
<td>Università degli Studi di Palermo</td>
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<td><strong>Membro Supplente / Temporary member</strong></td>
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<td>Sabina Susmel</td>
<td>RU</td>
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<td>Università degli Studi di Udine</td>
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