APPLICATION TO THE MASTER'S DEGREE PROGRAM 2021/1

The Coordinator of the Postgraduate Program in Chemistry of Natural Products of the Natural Products Research Institute (PPGQPN-IPPN) of the Federal University of Rio de Janeiro makes public that, from March 17th, 2021 to April 18th, 2021 the applications for the selection process and admission to the Master Course for the first semester of 2021 are open.

1. THE VACANCIES AND VALIDITY

1.1. There will be 15 places available for admission to the Master's degree, for admission in the first semester of 2021, distributed in the areas of Biosynthesis and Chemotaxonomy, Chemical Ecology, Isolation and Characterization of Bioactive Metabolites, Medicinal Chemistry, Theoretical Chemistry, Metabolomics, Analytical and Preparative Methodology and Organic Synthesis.

1.2. This call will be valid from its publication until the end of the first semester of 2021.

1.3. Previous selection processes calls are considered extinct.

2. THE REGISTRATIONS

2.1. Candidates must register for the selection process by sending the documents described in 2.2, PDF format, to posgrad@ippn.ufrj.br.

2.1.1. The registration made by email will be approved only after confirmation of receipt of the registration by the Postgraduate Office.

2.2. Applicants must submit to the Postgraduate Office of the Natural Products Research Institute the following documents, when the activities return:

a. Original and copy of the diploma of graduation or official declaration of completion of graduation course;
b. Original and copy of identity card (Brazilian citizens only);
c. Original and copy of CPF (Brazilian citizens only);
d. Original and copy of the passport, when foreign;
e. Original and copy of the voter's ID card (Brazilian citizens only);
f. Original and copy of the certificate of reservation to the male candidates (Brazilian citizens only);
g. Documented *Curriculum Vitae* (Curriculum Lattes);
h. Original and copy of the undergraduate school history;
i. Application for registration, available in Annex I of this call, signed by the candidate;
j. A colorful ID sized photo.

2.3. Registration is free.

3. THE SELECTION AND CLASSIFICATION PROCESS

3.1. The selection process of the candidate will be carried out by an Evaluation Committee composed of four Professors from the IPPN Natural Products Chemistry Program, approved at a meeting of the Deliberative Commission of the PPGQPN-IPPN.

3.2. The selection of the candidates will follow the criteria established in Annex II of this call and the achievement obtained in the selection exam, which will consist of the application of a written specific exam and foreign language exam.

3.3. The exam consists in a remote exhibition, closed session, of the drawn contents listed in Annex III, with the maximum duration of 20 minutes, followed by an arguition by the Evaluation Committee. This exam is eliminatory and is intended to evaluate and verify the candidate's ability to express himself on the contents indicated in Annex III of this call, being evaluated with a grade from zero to ten.

3.3.1. The contents will be drawn in a close session of the Graduate Coordination and candidates on April 26th, 2021, at 9h30.

3.3.2. The presentations will be done following the submission order on Tuesday, April 27th, 2021 starting at 9h30 (Brasília time) in closed session, with the presence candidate and the Evaluation Committee, only.

3.3.3. The Graduate Coordination meeting and the exam will be held in the Google Meet platform. The candidates will be informed about the meeting links the day before the selection.

3.3.4. The candidate must prepare his presentation and share it with the Evaluation Committee in the platform.

3.3.5. The references suggested for the written test of the selection process is specified in Annex III.

3.4. The candidate will be subject to a foreign language test to verify the ability to read and understand English texts of the literature commonly used in the field of Chemistry as soon as presential activities are resumed and the Postgraduate Coordination obtains authorization from IPPN for its realization.

3.4.1. The candidates will be informed previously about the date, place and further details for the test realization.

3.5. During the tests, there will be no communication of any kind among the candidates, use of didactic-pedagogical material and use of any type of electronic device without the Evaluation Committee permission.

3.6. The evaluation of the *Curriculum Vitae* will be based on the documentation presented. The candidate who obtains the highest score in the evaluation will be awarded a grade of 10, with the scores of the other candidates being calculated by direct proportion. Only documented activities will be considered for curricular evaluation purposes.

3.7. The candidates who obtain a mark of five or more in the written test will be approved. Candidates who do not meet this criterion will be considered disapproved.

3.8. The final grade will be calculated according to the items explained in Annex II. The written test grade will comprise 75% of the final grade and the curriculum analysis will comprise 25% of the final grade.

3.9. The classification of the successful candidates will be in the descending order of the final grades. For any tiebreakers, the notes of the written test of the selection process will be considered.

4. THE RESULTS

4.1. The notes of the written tests of the selection process will be announced by e-mail until **April 29th, 2021**. The announcement will be made through a list containing the names of the candidates selected in order of classification and the final note of each candidate.

5. THE REVIEWS

5.1. After the final announcement the candidates can request a review, since it is written and signed properly.
5.1.1. Candidates interested in requesting a review of the written test may do so by e-mail to postgrad@ippn.ufrj.br on **April 30th, 2021.**

5.2. The Evaluation Committee will have 5 days after the review request to analyze, judge and communicate its decision in a document sent to the PostGraduate Office. After this period, the candidate will receive a copy of this document by e-mail.

6. THE FINAL CONSIDERATIONS

6.1. The final result should be approved at a meeting of the Deliberative Committee of the PPGQPN-IPPN.

6.2. Candidates who are approved and classified in this selection process should contact the Postgraduate Office to obtain information on enrollment. Registration will begin only after homologation of the final result in a meeting of CDPPG and can be carried out throughout the academic period, obeying the academic calendar of the UFRJ Post-Graduation.

6.3. The granting of scholarships will be conditioned to the availability of scholarships. The classification in the selection process does not guarantee the candidate a scholarship quota.

6.4. For further information, please contact:

Postgraduate Program Office (PPGQPN-IPPN)
Research Institute for Natural Products
Federal University of Rio de Janeiro
Avenue Carlos Chagas Filho, 373, CCS Building, Block H
City University - 21941902 - Rio de Janeiro - RJ
Phone: (21) 3938-6512 ext. 206, email: posgrad@nppn.ufrj.br

6.5. By signing up for the selection process, the candidate acknowledges and accepts the clauses and conditions established in this call.

6.6. The Coordination of the Postgraduate Program in Chemistry of Natural Products of the Natural Products Research Institute reserves the right to resolve cases not mentioned and situations not foreseen in this call.

Rio de Janeiro, March 1st, 2021.

Prof. Fernanda Gadini Finelli
Postgraduate Coordinator

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Photo

APPLICATION FORM	**Nº**	**MASTER ( )**	**DOCTORATE ( )**

PERSONAL DATA		
Name:		Gender:
Filiation:		
Nationality:	Place of birth:	
Marital status:	Birth date:	
Passport number:	CPF:	
Address:		
City:	State:	Zip code:
Phone number:		
E-mail:		

FORMATION
Graduation
Graduation course:
Institution:
Graduation date:
Post-graduation
Post-graduation course:
Institution:
Post-graduation date:
Current occupation
Role:
Occupation area:
Institution:
Other information you consider convenient:

I declare that the information contained in this form is complete and true.

date:

Signature:

ANNEX II

CRITERIA FOR THE MASTER SELECTION PROCESS

- Exam grade: 75%
- Curriculum analysis: 25%

The curriculum analysis will be done considering the following items:

1. Performance coefficient in the Undergraduate Course, on a scale of 0 to 10.
2. Presentation of of pertinent works in the area of Chemistry and the like presented in scientific events: 0.5 point per work, maximum of 4.0 points.
3. Participation in Scientific or Technological Initiation programs: 0.5 point per semester, maximum of 3.0 points.
4. Pertinent works in the area of Chemistry and similars published in scientific journals indexed in Qualis Química from CAPES, maximum of 10.0 points.
5. Application for registration of patents relevant to the area of Chemistry and the like, maximum 10.0 points.
6. Professional experience in the area of Chemistry and similars: 0.3 points per month of professional experience in higher/middle education, in the chemical industry or in research centers in the area of Chemistry and similars; 0.2 points per month working as an intern in the chemical industry, in research centers or as a scientific initiation scholarship in the area of Chemistry and similars; 0.1 points per month of performance in monitoring activities or participation in scientific initiation supervision confirmed by a supervisor's statement in the field of Chemistry and similars; maximum of 1.0 point.
7. Awards, organization of events and extracurricular courses: 0.25 points for awards or prominence in events in the Chemistry area, 0.25 points for organization of events in the area of Chemistry and similars, 0.25 points for every 15 hours of work in extracurricular courses in the area of Chemistry and similars; maximum of 1.0 point.

The evaluation of the curriculum will be based on the presented documents. The candidate who obtains the highest score in the evaluation will be given a score of ten, being the marks of the other candidates calculated through direct proportion.

SCORE TABLE FOR MASTER'S DEGREE CANDIDATES

Item	Value	Weight	Points
1. Performance coefficient in the Undergraduate Course		**x 1.0**	
2. Works in scientific events		**x 0.5**	
3. Scientific Initiation per semester		**x 0.5**	
4. Scientific articles		**x Stratum**[a]	
5. Patents		**x Type**[b]	
6. Professional experience in the area of Chemistry		**x Type**	
7. Awards, organization of events and extracurricular courses		**x Type**	
TOTAL:			

[a] Stratum A1: 3 points; A2: 2.7 points; B1: 2.4 points; B2: 1.8 points; B3: 1.5 points; B4: 1.2 points; B5: 0.9 point; C: 0.5 point. [b] Granted patent: 3 points; registered patent: 1.0 point.

ANNEX III

CONTENTS AND SUGGESTED BIBLIOGRAPHY FOR THE MASTER'S SELECTION PROCESS

- Electronic Structure and Chemical Bonds in Organic Molecules: formal charge; binding energy; atomic orbital; molecular orbital; Lewis structure; hybridization; structural representation.
- Molecular Geometry, Polarity of Bonds and Intermolecular Forces: theory of repulsion of valence electrons; dipole moment; hydrogen bonds; dipole-dipole force; ion-dipole interaction; boiling point, solubility and intermolecular forces.
- Conformations of alkanes and cycloalkanes: Newman projection, conformational stability analysis; conformational balance.
- Stereochemistry, Chirality and Molecular Asymmetry: enantiomers and chiral molecules; nomenclature of enantiomers; separation of enantiomers; optical activity, Fischer projection.
- Acid-Base reactions: theories of acidity and basicity; acidity and basicity of organic compounds; structure-reactivity relationship; relationship between K_a and ΔG; inductive effect, resonance, hyperconjugation and aromaticity; effect of the solvent on the acidity of the compounds.
- Reactivity: reactions from S_N1 and S_N2; reactions of E1, E2 and E1cB; electrophilic addition reactions to alkenes; addition reactions and substitution reactions to the carbonyl group; aromatic electrophilic substitution reactions and aromatic nucleophilic substitution reactions.

Suggested Bibliography

- Clayden, J.; Greeves, N.; Warren, S. *Organic Chemistry*, 2nd ed., Oxford University Press, 2012.
- Carey, F. A.; Giuliano, R. *Organic Chemistry*, 9th ed., McGraw-Hill, 2014.
- Bruice, P. Y. *Organic Chemistry*, 8th ed., Ed. Pearson Prentice Hall, 2017.
- Klein, D. R. *Organic Chemistry,* 3rd ed., Wiley, 2016.
- Atkins,P.; Jones, L.; Laverman, L. *Princípios de Química*, 7a. ed., Bookman, Porto Alegre, 2018.