REVIEW

on the materials for participation in a competition for the academic position "Associate professor", field of higher education 6. "Agrarian sciences and veterinary medicine", professional area 6.3. "Animal husbandry", scientific specialty "Special branches (Beekeeping and Sericulture)", for the needs of the Department of "Plant Protection" at the Faculty of Agronomy, announced by decision of the Academic council of a Forestry university – Sofia, in the State Gazette, no. 102 of 08.12.2023 with a term of two months and procedure code: **AGR – AsP – 1123 – 120.**

1. **Candidate for participation in the competition is:**

Ch. Assistant Dr. Tsvetelina Alipieva Nikolova

Reviewer: Associate Professor Dr. Ivona Vasileva Dimitrova, Associate Professor of professional area 4.3. Biological Sciences from Forestry University – Sofia, appointed as a member of the scientific jury, by order № ЗПС-66/14.02.2024 г. of the Rector of Forestry University –Sofia.

1. Brief biographical data about the candidate

According to the announced competition, only one candidate applied - Ch. Ass. Prof. Dr. Tsvetelina Alipieva Nikolova. During the period 1996 - 2005, she studied at the Faculty of Agronomy of the Forestry University - Sofia and graduated in accordance with the national qualification as a Master in "Agronomy. From November 2008 to October 2019, he held the position of "Assistant" in the Department of "Perennial Plantations and Horticulture", Faculty of Agronomy, Forestry University. She developed a dissertation on the topic "Changes in the biological trats of the mulberry butterfly under the influence of forage collected from areas with a high content of heavy metals in the soil" and in 2017 he obtained the educational and scientific degree "Doctor" in the scientific specialty "Special branches" (silkworms), professional direction 6.3 " Animal husbandry ". Since October 2019, she has been a "Chief Assistant" in the Department of "Plant Protection" of the AF at FU - Sofia. Her teaching activity is mainly in the field of "Special branches" (Beekeeping and Sericulture) of the students in "Bachelor" and "Master" degry, specialities Agronomy and Plant Protection, including conducting lecture courses and exercises on the disciplines: Beekeeping, Sericulture, Pollination of honey plants, Honey plants and bee grazing, Soil health, as well as exercises in the disciplines Fundamentals of Animal Husbandry and Private Animal Husbandry.

Ch. Ass. Prof. Tsvetelina Nikolova is a participant in the following committees of the Faculty of Agronomy - Committee on Attestation, Committee on Academic Activities and Quality of Education, Committee on Public Relations, Committee on Correcting Technical Errors and Updating of the Master' and Bachelor' Curriculums of both professional areas 6.1. Plant breeding and 6.2. Plant protection.

Ch. Ass. Prof. Dr. Tsvetelina Nikolova speaks English and Russian and has good computer skills.

2. Compliance of the candidate's submitted documents and materials with those required according to the Regulations for development of the academic staff at Forestry University;

The following documents and materials from Ch. Assistant Professor Dr. Tsvetelina Alipieva Nikolova:

- Autobiography;
- Diploma of completed education Master's degree "Agronomy";
- Diploma for a defended dissertation thesis for awarding the educational and scientific degree "Doctor";
- Medical certificate;
- Criminal record certificate;
- Reference-self-assessment for the fulfillment of the minimum scientometric requirements for the Academic position "Docent";
- Statement of contributions;
- Publication reference;
- Documents and written materials for other professional and creative activities and appearances within the meaning of Article 52;
- Sample information card in Bulgarian and English.

The candidate Ch. Ass. Prof. Dr. Tsvetelina Nikolova submits for the competition for the academic position "Associate professor" at the University of Forestry - Sofia all required documents according to article 59 items 1-5 of the Rules for development of the academic staff at the University of Forestry - Sofia, based on on which I prepare my review.

3. Evaluation of the candidate's educational and teaching activities

Ch. Ass. Prof. Dr. Tsvetelina Nikolova has over 15 years of teaching experience as an assistant (11 years) and chief ass. prof. (over 4 years) in the Faculty of Agronomy of University of Forestry - Sofia. For the students of the "Agronomy" and "Plant Protection" majors, she led lectures and exercises in the disciplines of Beekeeping, Sericulture, Pollination of honey plants, Honey plants and bee pasture, Soil Health, as well as exercises in the disciplines Basics of Animal Husbandry and Private Animal Husbandry. She has also carried out training practices for the mentioned Bachelor's specialties - in Beekeeping in a brood farm in Lovech and in Sericulture - in the Sericulture Experimental Station in Vratsa.

Ch. Ass. Prof. Dr. Tsvetelina Nikolova is the author of 6 study programs for the Master's degree in the field of Beekeeping.

The candidate is the scientific supervisor of 9 successfully graduated diploma theses at the Bachelor's, of which 8 are on topics in the field of Beekeeping and 1 - on Sericulture.

4. Evaluation of the candidate's scientific, applied scientific and publication activities

The publication activity of the candidate submitted to the competition includes, by indicators:

- Indicator A. Dissertation and publications related to the candidate's dissertation work - 3 copies, which are not subject to review. This forms 50 points that satisfy the requirements of the indicator.
- Indicator B 3. The published monograph "Honey Plants and Bee Pasture", issued in 2023, represents the candidate's habilitation work and provides the necessary 100 points for this indicator.
- Indicator D 7. The presented publications from scientific publications, referenced and indexed in world-famous databases are 14 and after reducing the points according to the number of co-authors, represent 292.5 points for the candidate.
- Indicator D 8. Publications in scientific non-refereed editions with scientific review or

published in edited collective volumes are 5, which after reduction bring the candidate 15.8 points.

- Indicator D is formed by the sum of Indicator D 7 and Indicator D 8, which is 308.3 points, which satisfies the requirements for a minimum of 200 points for this indicator.

In general, the candidate's submitted scientific journal publications can be differentiated as such into:

• in foreign refereed editions - 7 issues;

• in Bulgarian refereed editions - 7 issues; and

• in non-refereed editions - 5 issues.

Publications in proceedings of scientific forums (5 issues) are from international events. Of the 19 articles published - 14 are in English and 5 - in Bulgarian.

The number of co-authors in the publications reflects the candidate's participation in the creation of these works, the materials submitted for review show that the significant part of the articles are independent - 8 articles, with one co-author - 4 articles, with two co-authors - 4 articles and with three and more co-authored only 3 issues.

Apart from scientific publications Ch. Ass. Prof. Dr. Tsvetelina Nikolova presented and

- Guide to Sericulture, which was published in 2020 in co-authorship.

- Self-published 2023 Beekeeping Guide.

The results regarding the candidate's scientific, scientific-applied and publication activities correspond to and significantly exceed the minimum requirements of the Regulations for Application of ADASRB at the Forestry University - Sofia (458.8 points in total, with the candidate's personal participation being significant).

4.1. Participation in scientific, scientific-applied and educational projects

Ch. Ass. Prof. Dr. Tsvetelina Nikolova actively participates as a member of the collectives of various projects developed at LTU. The international project in which he participates is on the topic "Improving the practical skills of horticulture specialists in response to the requirements of the European Green Deal" under the Erasmus program. The candidate also participates in three national projects: The first of which is "Modernization of higher education for sustainable use of natural resources in Bulgaria"; The second - "Support for the development of scientific capacity at the Forestry University", under procedure BG05M2OP001-2.009 "Support for the development of doctoral students, post-doctoral students, specialists and young scientists"; and the Third - "Student Practices", whose funding organization: Operational Program "Science and Education for Smart Growth", co-financed by the European Structural and Innovation Funds. Another five scientific projects are financed by Forestry University - Sofia, four of them are in the field of research into various aspects of the production of agricultural products and one is in the field of Sericulture. Ch. Ass. Prof. Dr. Tsvetelina Nikolova presented these projects under Indicator E (E18l 1-8 + E19.1) as 140 points.

Indicator E also presents, as already noted, the Guide to beekeeping, which was published in 2020 in co-authorship, and the Guide to beekeeping, independently published in 2023 (E23 1-2), which represents 40 points.

So, in total, according to Indicator E, the candidate presents 180 points.

4.2. Characteristics of published scientific results

The published scientific publications can be attributed to two main areas - Beekeeping and Sericulture.

In the direction of beekeeping, the studies consider the following issues:

Influence of climatic conditions and bee grazing on the strength and productivity of bee colonies.
Nikolova, Ts. 2022. Influence of climate conditions and bee grazing on the strength and productivity of bee families. Scientific Papers. Series D. Animal Science, Vol. LXV, No. 2, p. 260-267. Web of Science Q4.
Malinova K., K. Gurgulova, I. Dimitrova, Ts. Nikolova. (2006). Study of the environmental factors for honey productivity in the area of UDPS "Petrohan" village of Burzia. Governance and sustainable development. 1-2 (14) pp. 321-325.
Study of egg-laying activity of queen bees
Tsvetanov Ts., P. Hristov, K. Malinova, Ts. Nikolova., (2013) Study of the annual egg-laying activity of bee queens in the different systems of beehives grown in the area of IZHN-Kostinbrod. Livestock Sciences No. 4-5, pp. 163-167. 7.5
Problems of hygienic behavior in bees
Malinova K., K. Gurgulova, S. Darkazanli, Ts. Nikolova. (2009). A study of the temporal dynamics of traits determining hygiene behavior in families of the honey bee (Apis melifera L.) Proceedings of an international scientific conference. "Good practices for sustainable agricultural production". pp. 229-235
Problems in beekeeping
Nikolova Ts., 2023 "Colony Collapse Disorder" (CCD). Causes of occurrence. Overview Animal Sciences, LX, Issue 60, No 2, p.16-22, Web of Science (2011-) (CABI)
State of beekeeping in Bulgaria
Nikolova Ts., I. Dimitrova, A. Teneva, 2023. The development of beekeeping in Bulgaria and the European Union in the last ten years. Livestock Sciences. Issue 60, No 1, 2023, pp. 37-45, Web of Science (2011-) (CABI).
Nikolova Ts., Tsvetanov. 2020. Analysis of bee products harvested in an urban environment. Proceedings of the electronic jubilee scientific conference with international participation "Livestock science - challenges and innovations", Institute of Livestock Sciences - Kostinbrod p. 192-202.
Study the potential of honey vegetation
Nikolova Ts., M. Mihailov, D. Serbezova. Determination of honey productivity of cherry varieties in Kyustendil region. Evaluation of Honey Productivity of Sweet Cherry Cultivars in Kyustendil Region. Journal of Mountain Agriculture on the Balkans, 2023, 26 (1), 377-388 ISSN1311-0489 (Print)
T. Nikolova, D. Serbezova. Influence of Climatic Factors on the Honey-Bearing Potential of Apple Cultivars. Journal of Mountain Agriculture on the Balkans, 2023, 26 (2), 311-323 ISSN1311-0489 (Print) Research Institute of Mountain Stockbreeding and Agriculture, Troyan ISSN 2367-8364 (Online)
Nikolova. Ts., A. Petrova., A. Yordanova., (2018). Study of the honey productivity of some tree species. Scientific papers series d. Animal Science, Volume LXI, No. 2, 2018, 16-219.
Nikolova Ts., Petrova, V. 2023. The development of (Crocus Sativus L.) in the area of the city of Sofia. Scientific Papers. Series A. Agronomy. Scientific Papers. Series D. Animal Science. Vol. LXVI, No. 2, 2023 ISSN 2285-5750; ISSN CD-ROM 2285-5769; ISSN Online 2393-2260; ISSN-L 2285-5750
Nikolova Ts., 2023. Impact of climate factors on the honey-bearing quality of saffron crocus (Crocus Sativus). Scientific Papers. Series A. Agronomy. Scientific Papers. Series D. Animal Science. Vol. LXVI, No. 2, 2023 ISSN 2285-5750; ISSN CD-ROM 2285-5769; ISSN Online 2393-2260; ISSN-L 2285-5750
Nikolova Ts. 2023. Honey plants and bee pasture. ISBN: 978-619-7703-33-7. Reviewers: Prof. Dr. Kalinka Gurgulova, Assoc. Dr. Ralitsa Balkanska
In the field of **Sericulture**
The application of artificial food
Nikolova, Ts. 2021. Effects of extract Origanum vulgare L. on Bombyx mori L. added to with

artificial food. Scientific papers series D. Animal Science, Vol. LXIV, , No. 2, 2021, pp. 266-271, ISSN 2285-5750, ISSN CD-ROM 2285-5769, ISSN Online 2393-2260, ISSN-L 2285-5750.
Nikolova, Ts. 2020. Growing mulberry silkworm with artificial diet with added extract Tribulus terrestris L. Bulgarian Journal of Agricultural Sciences,. 26 (5), 2020, pp. 1041–1046 ISSN 0310-0351 – print, ISSN 2534-983X – online, (En)
Nikolova Ts., 2020. Effect of extract Tribulus terrestris L. and technological features of the Bombyx mori L. fed with artificial diet. Scientific papers series D. Animal Science, Vol. LXIII, No. 2, 2020, pp. 341-344, ISSN 2285-5750, ISSN CD-ROM 2285-5769, ISSN Online 2393-2260, ISSN-L 2285-5750.

Influence of heavy metals on the development of Bombyx mori L.

Nikolova Ts., 2019. Influence of heavy metals on cocoon Bombyx mori L. Scientific papers series D. Animal Science, Vol. LXII, No. 2, pp. 176-179, ISSN 2285-5750, ISSN CD-ROM 2285-5769, ISSN Online 2393-2260, ISSN-L 2285-5750.
Nikolova Ts., Avramova K., Grekov D. (2017) Effect of some heavy metals on the major characteristics of silkworm Bombyx mori L., 8th Bacsa international conference "Climate changes and chemicals – the new sericulture challenges" Azerbaijan., Pages 52- 55.
Avramova K., D. Grekov, K. Malinova, Ts. Nikolova, (2013) Effect of the heavy metals Co, Pb and Cu on the basic biological characteristics of mulberry silkworm. 6 th bacsa international conference "Building Value Chains in Sericulture" Aprilq, Padua, Italy, p. 314-318

The influence of climatic factors on the development of mulberry plantations

Nikolova, Ts., I. Jekova (2017) Effect of climatic factors on the sustainability of different varieties of mulberry grown in the valley of Sofia. Bulgarian Journal of Agricultural Sciences. 23(6) 2017, p, 964-967 ISSN 0310-0351 – print, ISSN 2534-983X – online, (En).

4.3. Reflection of the candidate's scientific activity in the literature (citability)

Indicator D – is related to the presentation of citations or reviews in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes, which represents the interest in the candidate's research. To this indicator Ch. Ass. Prof. Dr. Tsvetelina Nikolova presented the citations of two scientific publications, both published in the Bulgarian Journal of Agricultural Science, an edition indexed in Scopus, each with two citations, which gives a total of 60 points. According to this indicator, the minimum requirements are 50 points, and 60 points are fulfilled.

4.4. Contributions in the works of the candidate/s (scientific, scientific-applied, applied)

The candidate Ch. Ass. Prof. Dr. Tsvetelina Nikolova participated in the competition with 19 publications, of which 14 were in refereed publications, of which - indexed - 2 in Q3 on Scopus and 4 in Q4 on Web of Science. The presented articles are methodically sustained, the obtained results end with clearly formulated conclusions. As a result Ch. Ass. Prof. Dr. Tsvetelina Nikolova formulates contributions of an original, confirmatory and scientific-applied nature. In general, I accept the reference to the contributions and can single out some of them as more significant:

I. Contributions of original character

1. A monograph is presented, summarizing information about the honey-bearing vegetation by seasons with the aim of creating conditions for long-term bee grazing.
2. An assessment of the honey resources in the area of the Vrazdebna UOP - the city of Sofia was carried out.
3. The impact of biochar on the honey potential of Cucurbita pepo var species was studied. giromontia, Vicia faba and Phacelia tanacetifolia Benth.
4. Young cherry plantations in the Kyustendil region have a higher sugar content in the nectar.
5. In older apple trees, an increase in the sugar content of the nectar was observed, and the substrate MM 106 positively affected the sugar content of the nectar compared to the substrate M 9.
6. The saffron crocus is a good source of food and honey in the conditions in the Sofia region.
7. The honey-bearing vegetation around the apiaries in the regions of the city of Ihtiman and the city

of Koinare is sufficient for the development of bee families throughout the entire beekeeping season.
8. An analysis of the development of the bee families was made for the educational and experimental apiary of the "Petrohan" Apiary in the village of Burzia.
9. The possibility of developing beekeeping in urban conditions was studied, and the honey-bearing potential of species from the Fabaceae family was evaluated.
10. Bee families raised in a Langsroth Root hive system have been proven to have the highest annual egg-laying activity for the three beekeeping seasons compared to other hive systems.
11. Families of Apis melifera L. have a high degree of hygienic behavior and clean 50% of the larvae killed by the 6th hour.
12. Climatic factors (temperature and humidity) are favorable for the cultivation of mulberry in the Sofia valley for the production of mulberry leaf.
13. The high content of heavy metals lead and zinc in the feed resulted in reduced cocoon weight, shell weight, length and thread weight of the silkworm of the hybrids Super 1 × Hessa 2, Baksa 1 × Silk 2 and of the breed Kom 1.
14. The high content of heavy metals suppresses vitality, the duration of the larval period is extended, the yield of cocoons decreases.

II. Contributions of an affirmative nature

1. The factors for the empty hive syndrome have been studied and the development of the problem in our country and abroad has been analyzed.
2. The positive effect of artificial food with added extract of Origanum vulgare L. on Bombyx mori L. hybrid I1xVB1xH2xHB2 by showing better growth and development was confirmed.
3. Saffron crocus bulbs up to 30 mm in size result in a higher number of flowers per m2 and a higher overall yield of daughter bulbs.
4. Silkworms and butterflies of Bombyx mori L. have been confirmed to accept well artificial food with added extract of Tribulus terrestris L. and to affect the rate of growth and pupation. The active substances in the plant have a positive effect on the body of the examined larvae.
5. The presence of heavy metals has a significant effect on thread length and weight and less on thread length and silk ratio.

III. Contributions of a scientific and applied nature

1. The state, trends and prospects of beekeeping in our country and in the European Union during the period 2012-2021 were studied. An increase in the total number of bee families, honey production and professional apiaries was found.
2. It has been established that urban conditions are suitable for the development of bee colonies, their strength and honey productivity.
3. It has been proven that the conditions in the Sofia region are favorable for growing saffron crocus as a honey crop

5. Evaluation of the candidate's personal contribution

In the attached reports on the activities of Ch. Ass. Prof. Dr. Tsvetelina Nikolova, it is clear that she has a major contribution to the planning and implementation of the scientific tasks, which proves the fact that the significant part of the articles are independent - 8 issues, as well as the monograph, with one co-author - 4 issues, with two co-authors - 4 issues and with three or more co-authors only 3 issues. The candidate actively participates in a large number of projects on various topics, which demonstrates potential for the realization of scientific research.

6. Critical notes and recommendations

I have no critical remarks or questions for the candidate. I recommend in her future activity Ch. Ass. Prof. Dr. Tsvetelina Nikolova to direct her efforts in a specific scientific area with the aim of applying it in practice.

7. Personal impressions

I have long-standing impressions of the professional career of Ch. Ass. Prof. Dr. Tsvetelina Nikolova. Ch. Ass. Prof. Dr. Tsvetelina Nikolova is distinguished by persistence in her scientific and teaching work, works successfully in a team, strives to implement innovations in her scientific and teaching activities, takes part in various scientific forums. A teacher by profession, she has proven herself as a first-year Agronomy course head, supporting students' activities outside of the compulsory activities - such as the annual and participation in the Agronomy Games since its inception, Forest Week activities and various other extra-curricular activities.

8. Conclusion

Based on the analysis of the candidate's scientific, scientific-applied and teaching activities, I believe that CH. ASS. PROF. DR. TSVETELINA ALIPIEVA NIKOLOVA responds to the complies with the requirements of the Law on development of the academic staff in the Republic of Bulgaria, the Rules for its implementation and the Rules of the of LTU - Sofia for its implementation, which gives me reason to POSITIVELY evaluate its overall activity.

I take the liberty of proposing to the respected members of the Scientific Jury to vote positively, and the Faculty Council of the Faculty of Agronomy at the Forestry University - Sofia to elect Ch. Ass. Prof. Dr. TSVETELINA ALIPIEVA NIKOLOVA to take the academic position "Associate Professor" in the discipline "Beekeeping", scientific specialty "Special branches (Beekeeping and Sericulture)", professional area 6.3. Animal Husbandry.

Reviewer Signature [redacted]

Review submitted to: 15.4.2024 г.