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THE FORMATION AND BENEFITS OF CALIFORNIA RED WORM AND EARTHWORM COMPOST

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Abstract: The general structure of California red worms and earthworms, as well as their beneficial aspects to human health and agriculture, are described in this paper.

Keywords: Dissepiment, tselotelia, endothelium, morrenov, tiflozol, mufta, arxitomiya, paratomiya, coprolite, Tubifex, Eisenia, chloragogen, and connectives.

Introduction: California red worms, belonging to the annelids (annelidae) class and specifically to the clitellata subclass, when cultivated in a 400 square meter basin, yield 70 tons of biogas and 300 square meters of high-quality worm compost in 3 months. Apart from biogas, these worms also produce "vermicompost" found within the biogas, containing all beneficial elements. The vermicompost intensively absorbs water through the worm's body, reaching the lower basin and is collected by the specially constructed "channels."

Main Body: In oligochaetes such as the clitellates, only their bristles remain instead of their parapodia. Their body is made up of segments with similar structures. It contains several glands that produce a cold substance. This fluid is used to create a pillow that covers the top of the worms. The anterior end of their body is called prostomium, which is not included in any of the senses. The next part is the mother's body, where the anal ring is located. In the anterior champt, there is Reproductive System:

The California red worm is a hermaphrodite, with three pairs of reproductive glands located in its seminal vesicles. Reproduction begins with spermatozoa released from capsules. Each side of the worm's body initiates a spermatozoa pathway, emerging externally by the 15th segment. The seminal vesicles of the reproductive glands are situated in the 13th and 14th segments of the worm's body, producing seminal fluids that lead to sperm pathways and receptacles for eggs in segments 9-10. These seminal fluids contribute nutrients essential for developing embryos.

Reproduction Process:

The coupling of worms involves mutual exchange of sperm between two individuals. Two worms approach each other belly to belly, with their heads pointing in opposite directions. The clitellum of each worm secretes a sticky substance that encloses a mufta-shaped cocoon around their bodies. After separation from the male copulatory organ of one worm, sperm cells enter the cocoon of the second worm through its copulatory organ. Inside the cocoon, sperm cells from the seminal vesicles in segments 13-14 and receptacles for eggs in segments 9-10 are combined, leading to fertilization.

Asexual Reproduction:

Paratomy, known as architomy in this type of reproduction, divides the worm's body into two segments. The unformed posterior portion of the first segment is formed, followed by the previous portion of the posterior portion. Earthworms such as Lumbricus variegatus and enchytraeids exhibit similar reproductive patterns. Paratomy resembles the asexual reproduction of segmented worms, where the body is divided into a pair.

Economic Importance:

Oligochaetes play a significant role in agriculture, serving as food for fish. Red worms (Tubifex) are utilized as food for aquarium fish, while Eisenia worms are specifically cultivated for vermicomposting.

Excretory Organs:

Each segment contains a pair of metanephridia for excretion. Chloragogen cells, which collect waste products from the body cavity and blood vessels of the middle intestine, also perform excretory functions.

Conclusion: In conclusion, the California red worm demonstrates potential benefits in soil fertility, waste management, and possibly disease control. Its use in producing vermicompost is pivotal for sustainable agriculture and environmental management.

References:

1. O. Mavlonov, SH. Xurramov, X. Eshova. Umurtqasizlar zoologiyasi. Toshkent 2006.

2. Z.N. Norboyev. Umurtqasiz hayvonlar zoologiyasidan amaliy mashg'ulotlar. Toshkent "Mehnat" 1991.

3. K. Samadov, M.K. Xabirov. Umurtqasiz hayvonlar zoologiyasi. Toshkent 1975.

4. Burxon, F., Enverovna, B. L., & Dilshod, M. (2024). CHAKANDA (HIPPOPHAE RHAMNOIDES) DORIVOR O'SIMLIGINING ZARARKUNANDALARI. Science and innovation, 3(Special Issue 21), 733-737.

5. Nurova Z., Musurmonova A., Noxidirova Z., Xo'janazarova S., Odam kasalliklariga qarshi zardob ishlab chiqarishning immunologik ko'rsatgichlari. 3 (1 Part 3), 93-95.

6. Батиров, Х. Ф., Файзуллаев, Б., & Маликов, Д. (2022). ЗИМУЮЩИЕ ДВУЛЕТНИКИ В КАЧЕСТВЕ СИДЕРАТОВ. кандидат физико-математических наук, доцент ТН Ледащева Ч л е н ы р е д к о л л е г и и: доктор экономических наук, профессор ММ Редина; доктор геолого-минералдогических наук, профессор АП Хаустов; кандидат технических наук, профессор ЕВ Станис, 21, 311.

7. Burxon, F., & Dilshod, M. (2023). ZARAFSHON VOHASI SHAROITIDA TERAK BARGXO 'RI CHRYSOMELA POPULI L. NING BIOLOGIK-EKOLOGIK XUSUSIYATLARI VA ZARARI. PROSPECTS OF DEVELOPMENT OF SCIENCE AND EDUCATION, 19(23), 411-414.

8. Ruzikulova, D. X. (2024, May). YASHIL IQTISODIYOTNI RIVOJLANTIRISH. In INTERNATIONAL CONFERENCE OF NATURAL AND SOCIAL-HUMANITARIAN SCIENCES (Vol. 1, No. 4, pp. 37-40).

9. Nurillaev, J. Y. (2024). Theoretical and methodological foundations of financing karakul farming in a market economy.

10. Yarashevich, P. N. J. (2023). Factors for Choosing a Marketing Strategy in Tourism Development.

11. Madayev, O., Sobirov, A., Xolmanova, Z., Toshmirzayeva, S., Ziyodullayeva, G., & Shamsiyeva, M. O'zbekiston Respublikasi Oliy Va O 'Rta Maxsus Ta'lim Vazirligi.

12. Нуриллаев, Ж. Я. (1999). Оценка метафилактических мероприятий по отдаленным результатам хирургического лечения мочекаменной болезни у детей.

13. Ruzikulova, D., & Muminov, D. (2022). INSURANCE TECHNICAL RISKS AND CHALLENGES OF THEIR DEVELOPMENT. Women's Health Medicine, 18(1).

14. Xalikovna, R. D. (2023). Teaching Vocabulary Through Word Games. Central Asian Journal of Social Sciences and History, 4(6), 136-144.

15. Khasanova, F. (2020). The Role Of Baihua In Chinese Linguistics. The American Journal of Interdisciplinary Innovations and Research, 2(10), 97-102.

16. Nurillaev, J. Y. . (2021). Directions To Improve The Activities Of The Karakulchil Sector In Uzbekistan. The American Journal of Interdisciplinary Innovations and Research, 3(02), 57–62. https://doi.org/10.37547/tajiir/Volume03Issue02-11

17. Xolmanova, Z. (2022). SEMANTIK MAYDON VA SEMANTIK TO ‘R IMKONIYATLARI. COMPUTER LINGUISTICS: PROBLEMS, SOLUTIONS, PROSPECTS, 1(1).