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وه‌زاره‌تی خوێندنی باڵا و تۆێژینه‌وه‌ی زانستی

زانکۆی سەڵاحەدین

کۆلێژی زانست

Ministry of Higher Education and Scientific Research

Salahaddin University

Science College

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| **پرۆپۆزەلى توێژینه‌وه‌ی ماستەر** | |
| **1. Title of MSc Research Proposal** | **١. ناونيشانی پرۆپۆزه‌لی توێژینەوەی ماستەر** |
| Effects of NPK Combinations, Organic Fertilizer and Light Intensity and their Interactions on some Growth Characteristics and Quality of Lantana  *Lantana camara L.* | |

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| **٢. زانیاری قوتابی و سەرپەرشتیار 2. Student and Supervisor Details** | | |
| Name and Surname  of Student | هيام يونس طهHiam Younis Taha | ناوی سیانی قوتابی | |
| Affiliation | به‌شي بايۆلۆجي/كۆليجي زانست/ زانكۆي سه‌لاحه‌دين-هه‌ولير | ناونیشان (بەش، کۆلێژ، زانکۆ) | |
| Name and Surname  of Supervisor 1 | Abdulghany Omer Ismaeel Sarmamyعبدالغني عمر اسماعيل سارمةمي | ناوی سیانی سه‌رپه‌رشتیار 1 | |
| Scientific Title | Professor | پله‌ی زانستی | |
| Affiliation | به‌شي بايۆلۆجي/كۆليجي زانست/ زانكۆي سه‌لاحه‌دين-هه‌ولير | ناونیشان (بەش، کۆلێژ، زانکۆ) | |
| Name and Surname  of Supervisor 2 )If present) | - | ناوی سیانی سه‌رپه‌رشتیار 2  ئه‌گه‌ر هه‌یه‌)) | |
| Scientific Title | - | پله‌ی زانستی | |
| Affiliation | - | ناونیشان (بەش، کۆلێژ، زانکۆ) | |

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| **3. Proposal Details:** | **٣. وردەکاری پرۆپۆزەل** |
| **Introduction** |  |
| Lantana *Lantana camara* L. is a beautiful plant naturally grown worldwide, used in home gardens, common gardens, natural green fencing, ornamentals and as medicinal plant and because of its chemical constituents such as essential oils and phenolic compounds used in medications.  Medicinal plants containing chemical compounds with biological activity when used in medication and human cares, but these compounds are present in plant tissues at very low concentrations. Biosynthesis of these compounds in plants depend on some plant growth factors such as soil moisture contents, nutrient elements, soil organic matter content, light intensity and many other factors. It is our duty as Scientists to search and determine the active factors which cause an increase in the concentrations of these active chemicals and to determine the growth factors that cause the highest plant production. In the present study we try to increase plant fresh and dry weight and to increase the chemical constituents of Lantana plants, such as its essential oils, using three factors such as **light intensity** at 100%, 80% and 120% of the natural light intensity, **organic matter** at 0.0 and 5% v/v of the soil and **NPK** **combinations** at doses of 0.0, 200 and 300 kg/ha to determine the effects of these three factors and their interactions on some growth characteristics and chemical constituents in plant tissues. | |
| **Research Objectives** |  |
| The objectives of the proposed project are:  1. To determine the effects of NPK combinations, light intensity and Organic fertilizer and their interactions on some plant growth characteristics of Lantana.  2. To increase biological yield of plant and plant productivity.  3. To increase the biologically active chemical constituents of plant tissues. | |
| **Methodology and Data Collection** |  |
| Lantana seeds will collect from the wild plants naturally outgrowth in Kurdistan region (or import seeds from scientific authenticated seed banks). Seeds will cultivate in pots inside greenhouse. Effects of different levels of NPK, light intensity, and Organic fertilizer will studied on plant growth characteristics such as plant height, fresh and dry weight of the plant shoot parts, and chemical constituents. Chemical analysing of shoot extracts will be done using different techniques to determine the effects of these factors on chemical constituents such as essential oils. Data will be register about the following characteristics:  Germination%, plant height, fresh and dry weight of shoots.  **Characteristics to be studied:**   1. **Soil Analysis:**   Sand%, Silt%, Clay%, Texture, Organic Mature, pH, EC, Total Nitrogen, Phosphorus and Potassium   1. **Plant Bio-analysis:** 2. Germination%, 3. Plant height (cm), 4. No. of Branches, 5. Number of leaves, 6. Stem diameter (cm), 7. Fresh weight of shoots, 8. Fresh weight of leaves, 9. Dry weight of shoots, 10. Dry weight of leaves, 11. Biological yield 12. Leaf Water Content 13. Root Diameter 14. RWC (relative water content) 15. Light efficiency 16. **Plant Chemical analysis:** 17. Total Nitrogen (mg g-1), 18. Total protein content (mg g-1) 19. Total Potassium (mg g-1), 20. Total Phosphorus (mg g-1), 21. TSC: Total soluble (dissolved) carbohydrates, 22. Ash content of leaves (%), 23. Phenol content, 24. Chlorophyll a, b and total chl. , 25. Plant pigments (Carotenes, Xanthophyll) | |
| **Scope and Limit to the Research** |  |
| Scientific studies need many laboratory and field equipment's, time, money, support and appropriate conditions. Without the University's support, I think, we may be face the deficiency in some chemicals, equipment's, analyzing systems and equipment's required for testing or determination of some chemical constituents in plant tissues, therefore, we will try to do some of the requested tests outside the College of Science. | |
| **Duration and Timeline** |  |
| The present study will takes 24-30 months for courses, applying a factorial experiment, data collection and arrangement, laboratory works , data analyzing, Thesis preparing, paper publishing…etc. | |
| **Conclusion** |  |
| I think, we will obtain good results about increments in plant productivity and improvement in the quality, because the factors we are going to use in the study have important roles in physiological activities of plant, that lead to an increase in plant production, improvements in quality and increments in biological active chemical constituents. | |
| **References** |  |
| 1. Ahandani EA, Fazilati M, Boghozian A and Ahandani MA. Effect of Ultraviolet (UV) Radiation Bonds on Growth and Chlorophyll Content of Dracocephalum moldavica L Herb.Journal of Biomolecular Research & TherapeuticsISSN: 2167-7956  2. Amaki, W.; Yamazaki, N.; Ichimura, M.; Watanabe, H. Effects of light quality on the growth and essential oil content in sweet basil. Acta Hortic. **2011**, 907, 91–94.  3. Darko, E.; Heydarizadeh, P.; Schoefs, B.; Sabzalian, M.R. Photosynthesis under artificial light: The shift in primary and secondary metabolism. Phil. Trans. R. Soc. B **2014**, 369, 20130243.  4. Hollosy F. Effects of ultraviolet radiation on plant cells. Medchem,  Molebio & Pathobio. 2002; 33:179-197.  5. World Health Organization, WHO. Traditional Medicine, Fact Sheet Number. 134; 2008.  6.Yang L, Wen KS, Ruan X, Zhao YX, Wei F, Wang Q. Response of plant secondary metabolites to environmental factors. Molecules. 2018; 23(4):E762. | |
| **Notes** | **هەر زانیارییەکی گشتی دیکە کە سەرپەرشتیار بە گرنگی بزانێت** |
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| **٤. سیمیناری چەسپاندنی پرۆپۆزەڵ** | | |
| **Date of Presentation:** | | **بەرواری پێشکەشکردنی سیمینار:** |
| **Notes and Suggestions of Proposal Evaluating committee** | | **تێبینی و پێشنیاری لێژنەی هەڵسەنگاندنی پرۆپۆزەڵ** |
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| **Members of Proposal Evaluating Committee** | **ئەندامانی لێژنەی هەڵسەنگاندنی پرۆپۆزەڵ** | |
| |  |  |  | | --- | --- | --- | | ‌Head of Committee |  | سەرۆکی لێژنە | | Scientific Title |  | پله‌ی زانستی | | Affiliation |  | ناونیشان (بەش، کۆلێژ، زانکۆ) | | Signature |  | واژو | | | |
| |  |  |  | | --- | --- | --- | | Member 1 |  | ئەندامی یەکەم | | Scientific Title |  | پله‌ی زانستی | | Affiliation |  | ناونیشان (بەش، کۆلێژ، زانکۆ) | | Signature |  | واژو | | | |
| |  |  |  | | --- | --- | --- | | Member 2 |  | ئەندامی دووەم | | Scientific Title |  | پله‌ی زانستی | | Affiliation |  | ناونیشان (بەش، کۆلێژ، زانکۆ) | | Signature |  | واژو | | | |

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| **٥. په‌سه‌ندكردنی پرۆپۆزەل** |
| **په‌سه‌ندكردنی پرۆپۆزەل له‌ لایه‌ن لیژنه‌ی زانستی به‌ش** |
| ژماره‌ی كۆنووسی كۆبوونه‌وه‌:  رێكه‌وتی كۆبوونه‌وه‌:  بریار: په‌سه‌ند كرا په‌سه‌ند نه‌كرا    واژوو:  ناوى سه‌رۆكی لیژنەى‌ زانستی به‌ش مۆری به‌ش  واژوو:  ناوى سه‌رۆكی به‌ش: |
| **په‌سه‌ندكردنی پرۆپۆزەل له‌ لایه‌ن ئه‌نجومه‌نی كۆلێژ** |
| ژماره‌ی كۆنوسی كۆبوونه‌وه‌:  رێكه‌وتی كۆبوونه‌وه‌:  بریار: په‌سه‌ند كرا په‌سه‌ند نه‌كرا  واژوو:  ناوی راگری كۆلێژ: مۆری كۆلێژ |

**تێبینی:** تكایه‌ فۆرمه‌كه‌ ته‌نها به‌ یه‌ك زمان (زمانی توێژینه‌وه‌) پڕ بكرێته‌وه‌.