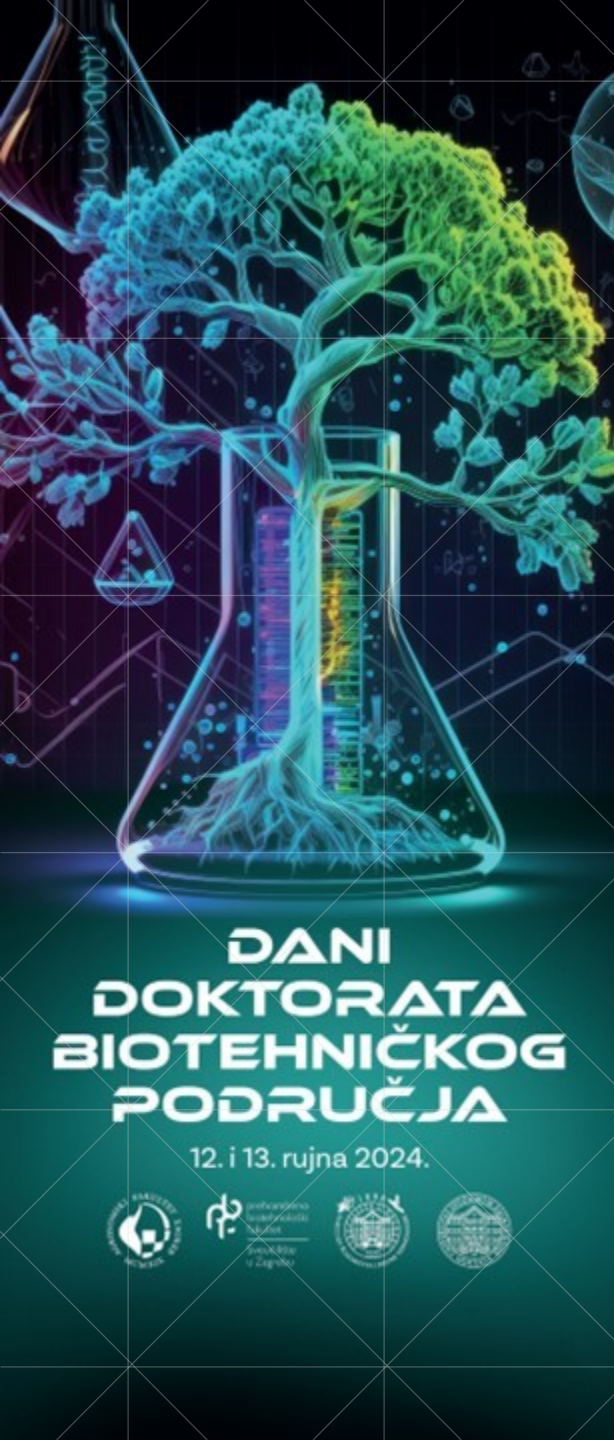


Influence of seasons on fecal metabolites of hormones and diet quality indicators of the European mouflon (*Ovis aries musimon*)

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Introduction

- Very valuable information – representation of biological process
- Simplicity and non-invasiveness
- European muflon (*Ovis aries musimon*)
- Introduction to Croatia: 1900.g





Picture 1. European muflon
Source: u/dimitrios_vlachos_04



Hormones and dietary quality indicators

- Cortisol and its metabolites- bio-indicators of stress
- Thyroid hormones and its metabolites
 - ELISA methodes
- Dietary quality indicators
 - FN and FP
 - NIR spectorscopy



Hypotheses

1. The concentration of the metabolite cortisol is higher in the colder seasons and lower in the warmer seasons
2. The concentration of T3 metabolites is lower in the warmer seasons and higher in the colder seasons
3. The concentration of FN and FP is higher in the warmer seasons and lower in the colder seasons
4. The Concentrations of the fecal metabolites cortisol and T3 hormones are negatively correlated with the concentrations of dietary quality indicators



Main goals

1. To compare concentrations of cortisol metabolites between seasons
2. To compare concentrations of T3 metabolites between seasons
3. To compare concentrations of dietary quality indicators between seasons
4. Assess and test the correlation between concentrations of fecal cortisol metabolites and T3 metabolites with the concentration of dietary quality indicators



Study area

- Mediterranean area – around town of Senj
 - moderately warm, humid climate with hot summers
- surveyed area is 2950 ha



Picture 2. Study area



Sampling

- 4 times a year to cover 4 seasons, for 2 years
- At least 40 fresh fecal samples per season
- Plastic bags, portable refrigerator
- After field work, immediately frozen at -20°C
- Total: at least 320 samples

Picture 3. Sampling of feces



Climate data

- Link with lab results
- 10 electronic devices for measuring data
 - Tinytag Plus 2 – TGP-4500 model
 - On 70 – 860m altitude
 - Spacing from every station is 80m





Picture 4. Data logger



Laboratory analyses

- Cortisol
 - 0.5g of feces
 - 5 ml 80% methanol
 - ELISA kit
- T3 hormone
 - Freeze drying
 - 70% ethanol
 - ELISA kit



Picture 5. ELISA kits
Source: Indiamart



Laboratory analyses

- FN and FP
 - Drying on 60°C
 - Grinding on 1mm
 - NIR Spectroscopy



Picture 6. NIRS spectroscope
Source: PCN Europe



Statistical data processing

- R program
- analysis of variance
- linear models
- Tukey post hoc test
- Pearson's correlation and t-test



Conclusion

- Better understanding of the ecology of mouflon
- Better understanding of adaptation to environmental variables over the seasons
- New insight into the biology of the mouflon as a specie



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Questions?

Thank you for your attention!

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