Hana Středová (Ed.)

# 32nd International Conference
# MendelNet 2025

## BOOK OF ABSTRACTS

November 5, 2025
Brno

MENDELU
Faculty
of Agronomy

2025

Mendelova univerzita v Brně

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Conference MendelNet 2025 was organised by the Faculty of AgroSciences, Mendel University in Brno and supported by IGA project No. IGA25-AF-SK-002.

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**ISBN 978-80-7701-074-0 (online ; pdf)**
**https://doi.org/10.11118/978-80-7701-074-0**

## ABSTRAKT

Sborník abstraktů z 32. mezinárodní konference doktorandů MendelNet 2025.



Klíčová slova: MendelNet, agroekologie, živočišná biologie, živočišná produkce, aplikovaná chemie a biochemie, rostlinná biologie, rostlinná produkce, technika a technnologie & potravinářství, živá příroda



## ABSTRACT

Book of abstracts from MendelNet 2025, International Ph.D. Students Conference.



Keywords: MendelNet, agroecology, animal biology, animal production, applied chemistry and biochemistry, plant biology, plant production, techniques and technology & food technology, wildlife research

# OBSAH

# PAW USED FOR SEED PRIMING TREATMENT IN SAGE FOR STIMULATION OF SEED GERMINATION AND EARLY SEEDLING GROWTH

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## ABSTRACT

Sage (*Salvia officinalis* L.) is an important medicinal plant in the Lamiaceae family. To obtain strong and vital seedlings, it is possible to treat seeds using seed priming treatment. Seed priming is a short-term pre-soaking of seeds to activate metabolic processes without germination, followed by drying seeds to storage moisture. Plasma-activated water (PAW) is the water treated with non-thermal plasma (NTP), which generates rich reactive oxygen and nitrogen species (RONS), and other radical compounds, leading to changes in chemical properties (pH, ORP and conductivity). PAW can thus break seed dormancy, nourish seedling growth, show antimicrobial effects against biotic stress, and modulate plant physiology to resist abiotic stress. This study novelly applied seed priming with PAW, prepared by NTP during 5 (P5), 10 (P10), 15 (P15), and 20 (P20) minutes. Seed germinations were P5: 61.34%; P10: 38.67%; P15: 51.33%; P20: 57.33%; hydropriming: 48.67%; control: 22.00% and germination indexes were P5: 57.82; P10: 31.92; P15: 51.01; P20: 49.56; hydropriming: 37.90; control: 14.46 after 14 days seed cultivation. Comparing P5 (the best PAW enhancer) to control, both fresh and dry biomass in P5 maximally rose by 230%. In addition to a slight decrease in root length (1.11 mm), both shoot (5.61 mm) and seedling (4.73 mm) lengths were enhanced. Seedling vitality index (SVI III) grew up to 7439.14 from 827.08. This study proved that PAW-priming treatment can stimulate sage seed germination and early seedling growth.

Keywords: sage, PAW, stimulation, seed priming, RONS

### ACKNOWLEDGEMENT

The research was supported by the EU project Next Generation EU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V03-00033 (Environmental applications of electrical discharges for water, air cleaning, and agriculture).

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