Functional seed traits of wild edible Eastern Mediterranean plants

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80% of our calorie intake comes from just 12 plant species

↓ FOOD SECURITY
EDIBLE PLANTS & WELLBEING

5,000 - 12,000 edible plants

(Ulian, T. et al., 2018, Kahane et al., 2013)

Wild Edible Plants (WEPs)
- Enhance food security
- Improve local livelihoods
- Socioeconomic impact
- Nutritional intake balance
THE MEDITERRANEAN “DIET”

NCDs risk*
Cardiovascular, cancer, diabetes

* Physical activity required too!

↓ Meat
Poultry, Dairy
Fish & Seafood
Greens & Vegetables

WESTERN
ADRIATIC
EASTERN
NORTH AFRICAN

WEPs FROM JORDAN AND LEBANON

(Noah and Truswell, 2001)
IDENTIFYING WEPs FROM JORDAN & LEBANON

Databases analysis
Literature review
In-country experts

142 POTENTIAL WEPs

117 CONFIRMED WEPs

Asparagus aphyllus
WEPs TRAITS

**Life form**
- Geophytes: 12%
- Hemicryptophytes: 24%
- Therophytes: 12%
- Chamaephytes: 14%
- Nanophanerophytes: 9%
- Phanerophytes: 15%

**Families**
- Asteraceae: 19%
- Lamiaceae: 12%
- Apiaceae: 8%
- Fabaceae: 7%
- Rosaceae: 7%
OTHER USES OF WEPs

Food & Medicine

- 60% Edible only
- 40% Edible + Medicine
EDIBLE PARTS
EDIBLE PARTS

Gundelia tournefortii

Salvia hierosolymitana
CONSERVATION

THREATS

IUCN RED LIST

Data deficient: 1
Not assessed: 99

From: The IUCN Red List of Species. Nov 2018
KEW MILLENNIUM SEED BANK PARTNERSHIP (MSB)

2,553 accessions, 1,626 taxa
Jordan: 662 taxa
Lebanon: 964 taxa

> 39,000 wild species banked
> 2.2 billion seeds

49% J&L WES banked
WEPs SEED TRAITS

Embryo types according to Martin (1946)

- Spatulate: 34.6%
- Bent: 13.2%
- Linear: 15.3%
- Investing: 17.3%
- Peripheral: 9.1%
- Folded: 8.1%

Based on genus information from the 117 identified species from Jordan & Lebanon.
Based on species information from the 117 identified species from Jordan & Lebanon
Based on the WEPs from the Jordan and Lebanon collection at the MSB
CLIMATE AND GERMINATION

Climatic data for Jordan and Lebanon WEPs from the MSB collection, Fick, S.E. and R.J. Hijmans (2017)
WEPs SEED TRAITS

CLIMATE AND GERMINATION

Based on the germination of WEPs from the Jordan and Lebanon collection at the MSB.
ECOLOGICAL IMPLICATIONS

WEPs under a Mediterranean climate

Temperatures and precipitation over the year:
- January: 5°C
- February: 11.25°C
- March: 17.5°C
- April: 23.75°C
- May: 30°C
- June: 27.5°C
- July: 23.75°C
- August: 17.5°C
- September: 11.25°C
- October: 5°C
- November: 5°C
- December: 11.25°C

Precipitation:
- January: 0 mm
- February: 50 mm
- March: 100 mm
- April: 150 mm
- May: 200 mm
- June: 150 mm
- July: 100 mm
- August: 50 mm
- September: 0 mm
- October: 0 mm
- November: 0 mm
- December: 0 mm

Phenological phases:
- Seed dispersal
- Dry after ripening (↓PD)
- GERMINATION
- Fire season (↓PY)
- Cold (↓PD)
- Still dormant
- Cold (↓PD)
ECOLOGICAL IMPLICATIONS

WEPs under an Arid/Semi-Arid climate

- **Seed Dispersal**
- **Dry After Ripening (↓PD)**
- **Fire Season (↓PY)**
- **Germination**
THANKS!

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