

# Ethnobotanical Survey on Plants Used to Manage Febrile Illnesses among Herbalists in Casablanca, Morocco

Amal Dagni <sup>1†</sup>, Ramona Suharoschi <sup>2,3†</sup>, Simona-Codruta Hegheș <sup>4</sup>, Rodica Vârbă <sup>5</sup>, Oana Lelia Pop <sup>2,3\*</sup>, Romana Vulturar <sup>6,7</sup>, Adriana Fodor <sup>8</sup>, Angela Cozma <sup>9</sup>, Abdelaziz Soukri <sup>1</sup> and Bouchra El Khalfi <sup>1\*</sup>

## Supplementary material 1:

- Sample size calculation

The sample size for the study was calculated using the formula given by Lwanga and Lemeshow [23].

$$N = Z^2 p(1 - p) / d^2$$

Where,  $N$  = Size of the sample

$z$  = Substituting the  $z$  value of 1.96

$p$  = the anticipated population proportion as 60%

$d$  = the degree of precision 0.05

The sample size was calculated as 384 registered herbalists in Casablanca.

The number of registered herbalists in Casablanca was 110 according to documentary evidence in 2019 [75]. the sample size was modified using the formula given by Israel [76].

$$n = \frac{m}{1 + \frac{(m - 1)}{N}}$$

where,  $n$  = Sample size

$m$  = calculated sample size

$N$  = total study population

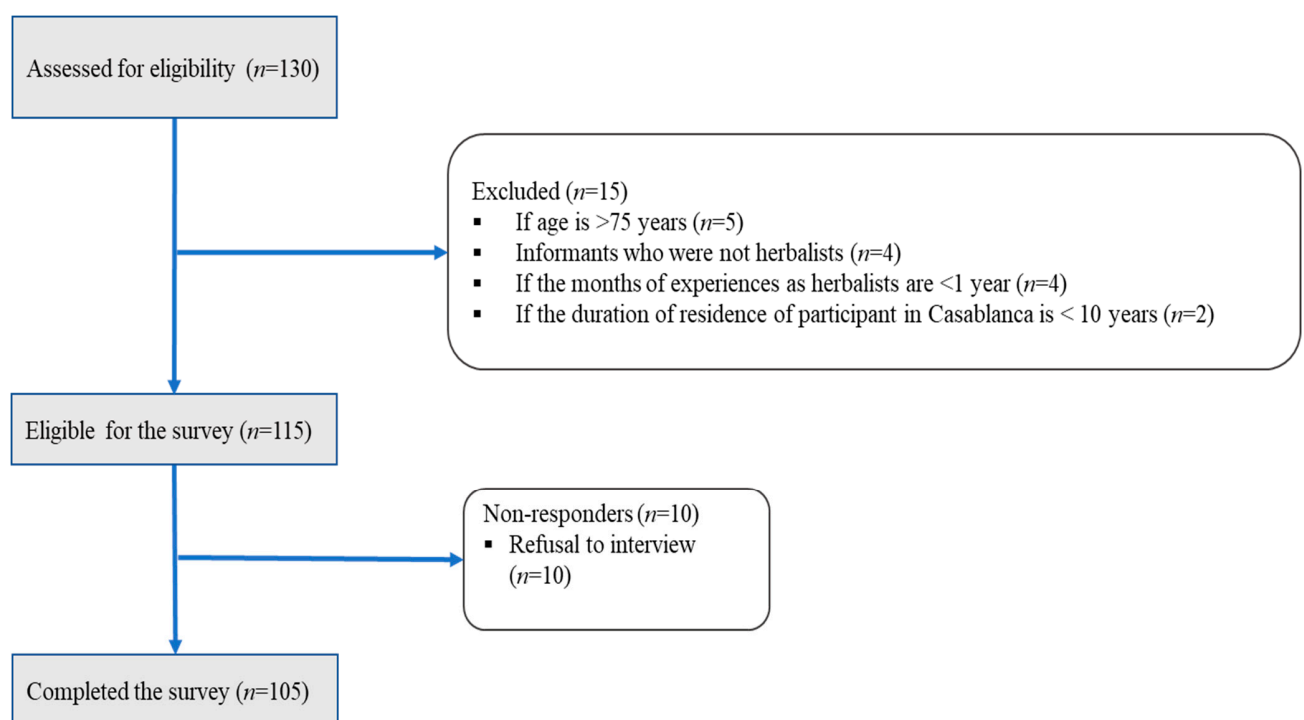
After applying the finite population correction factor, the required minimum sample size was 86.

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## Supplementary material 2:

### Eligibility Criteria



**Figure 2.** Flowchart for Enrolling Study Participants

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Supplementary material 3:

## *Questionnaire:*

### Personal information

- Region:

- Gender:

- ☐ Female  
☐ Male

- Age:

- ☐ A1 < 20 years ☐ A2: (20-60) ☐ A3 > 60

-Educational status:

.....

-Source of Knowledge:

.....

## **Plant**

**-Vernacular name:** .....

**-Treated diseases:** .....

### **- State of use:**

☐ Fresh

☐ Dried

### **- Part used:**

☐ Leaves

☐ Fruits

☐ Stem

☐ Root

☐ Seed

☐ Others;

### **- Form of employment**

☐ Powder

☐ Essential oil

☐ Extract

☐ Others;

### **- Method of preparation:**

☐ Decoction

☐ Infusion

☐ Others;

### **-Method of administration:**

☐ Oral

☐ Massage

☐ Others;

### **-Dose used:**

☐ Spoon

☐

- ☐ Pinch
- ☐ Others;

**-Duration of use:**

- ☐ One day
- ☐ One week
- ☐ One month
- ☐ until healed

**-Results:**

- ☐ Improvement
- ☐ Healing
- ☐ Ineffective
- ☐ Others;

**-Side effects :** .....

**-Toxicity of the plant:**

Yes

No

**- Precautions for use:** .....

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## Supplementary material 4:

**Table 5.** Traditional uses of the documented plants in Morocco.

Species	Local name	Traditional uses	References
<i>Dysphania ambrosioides</i> L. Mosyakin & Clemants	M'khinza	Cutaneous infections, digestive tract infections, asthma, hepatitis, headaches, migraine, measles, jaundice, syphilis, fever.	[77-79]
<i>Coriandrum sativum</i> L.	Kasbour	Dental pain, antidiuretic, antiseptic, antispasmodic, anti-diarrhea, carminative, hypertension, cardiac disease.	[80-82]
<i>Artemisia herba alba</i>	Chih	Gum disease, gastrointestinal infections, stomach pain, cold, nausea, wounds, rheumatism, appetite stimulant, indigestion, diarrhea, bad breath, anthelmintic, emmenagogue	[80, 83]
<i>Artemisia absinthium</i> L.	Chiba	Gum disease, dental pain, Intestinal parasites, dyspepsia, renal colic, cold and flu, diuretic	[80,84]
<i>Tetradlinis articulata</i> (Vahl) Mast.	El-Aarar	Stomach ache, hypotensive, diabetes, endocrinological, general health, gastrointestinal, otolaryngological, and respiratory	[85]
<i>Lagenaria siceraria</i> (Molina) Standl.	Slawi	Headaches, migraine	[79]
<i>Clinopodium nepeta</i> (L.) Kuntze	Manta	Respiratory diseases	[86]
<i>Mentha spicata</i> L.	Naanaa	Cutaneous infections, gum disease, halitosis, dental pain, tooth decay, cold, grippe, migraine, respiratory, skin	[77,80,87,88]
<i>Lavandula dentata</i> L.	Khzama	Cutaneous infections	[77]
<i>Mentha pulegium</i> L.	Flio	Flu, cold, respiratory canals, pathologies of the digestive system, cold problems, and pathologies of the respiratory system	[79,89]
<i>Salvia officinalis</i> subsp. <i>officinalis</i>	Salmiya	Intestinal parasites, intestinal pains, diarrhea, anxiety, wound healing	[90]
<i>Mentha suaveolens</i> Ehrh.	Timija	gum disease	[80]
<i>Origanum grosii</i> Pau & Font Quer	Zàater	Diabets	[91]
<i>Salvia rosmarinus</i> Spenn.	Azir	Cutaneous infections, gum disease, hypertensive, antiseptic, anti-hepatitis, detoxifying, antioxidant, enhances memory, gastric disorders, digestive system pathologies, cardiac disease, hypertension, and diabetes, allergy, asthma, cancer, infections, and immune system depression	[76, 79-82, 92]

<b><i>Thymus broussonetii</i> Boiss.</b>	Ziitra	Diabets	[88]
<b><i>Ocimum basilicum</i> L.</b>	hbaq	Cutaneous infections, oral ulcers, antiseptic, calming, urinary system disorders, allergy, cardiovascular diseases, and pathologies of the urinary system, against mosquito, sinusitis, and tachycardia	[76, 80,81, 93]
<b><i>Eucalyptus globulus</i> Labill.</b>	Kalitouse	Gum disease, oral ulcers, dental pain, flu, diabetes, asthma	[76,94]
<b><i>Myrtus communis</i> L.</b>	Rihan	Cutaneous infections, gum disease, dental pain, halitosis, healing, antispasmodic, antiseptic, hair care, diarrhea	[76,80,81]
<b><i>Olea europaea</i> L.</b>	Zitoun	Cutaneous infections, gum disease, oral ulcers, dental pain	[76,80]
<b><i>Papaver rhoeas</i> L.</b>	Belâaman	Cutaneous infections, boils, burns, pimples, scabies, skin cracks, skin diseases, sun burn/tanning, hair problem, kidney problems, diuretic	[76,78]
<b><i>Ziziphus lotus</i> (L.) Lam</b>	Sedra	Headache, joint pain, cardiac ailments, pulmonary infection, haemostatic, colic animals, diabetes, stomach pain, diarrhea, kidney stones, throat pain, pectoral and emollient, jaundice	[95]
<b><i>Citrus × limon</i> (L.) Osbeck</b>	Limon	Cutaneous infections, diarrhea, digestive problems, oral hygiene, cold, bronchitis	[77,89]