

# The MilkQua Project

PRIMA S2 – 2018

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## Document information

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## Executive Summary

<b>Background</b>	<i>[to be filled out]</i>
<b>Objectives</b>	<i>[to be filled out]</i>
<b>Methods</b>	<i>[to be filled out]</i>
<b>Results and implications</b>	<i>[to be filled out]</i>

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# Description

## 1. Sampling protocol

The sampling protocol focuses on the collection of plant materials and parameters such as plant species, growth stage, plant parts, quantity collected and site of collection (Table).

10 kg of plant parts are randomly harvested from healthy plants and collected in paper bags in order to avoid moisture condensation and their possible damage. Plant samples are then transferred immediately to the laboratory where they are dusted off to remove any attached soil particles, then, foreign material eliminated. After this cleaning step, plant material is spread carefully over filter paper and air dried at shade and at room temperature.

**Table.** Growth stage, plant parts quantity of samples and sites of collect of studied plants.

Plant Name	Growth stage	Plant parts collected	Sample quantity (Kg)	Site of collect in Tunisia
<i>Laurus nobilis</i>	Flowering	Leaves	10	Soliman
<i>Nigella sativa</i>	Fructification	Mature seeds	10	Korba
<i>Origanum majorana</i>	Flowering	Aerial parts	10	Cap Bon
<i>Thymus capitatus</i>	Flowering	Aerial parts	10	Boukornine
<i>Salvia officinalis</i>	Flowering	Aerial parts	10	Soliman
<i>Rosmarinus officinalis</i>	Flowering	Aerial parts	10	Takelsa
<i>Pelargonium graveolens</i>	Flowering	Aerial parts	10	Cap Bon
<i>Coriandrum sativum</i>	Fructification	Mature seeds	10	Korba
<i>Artemisia herba alba</i>	Flowering	Aerial parts	10	Gabes
<i>Juniperus oxycedrus</i>	Vegetative	Terminal branches	10	Beja

## 2. Extraction procedure

Essential oils (Eos) are extracted by hydrodistillation. For this, 100 g of dried plant samples and 500 ml of distilled water are placed in a Clevenger type apparatus according to the method described by Sadgrove and Jones (2015). A kinetic survey of the extraction time is done for each plant species in order to determine the optimal extraction times giving the best yields of Eos. At the end of extraction, Eos are separated from water, dried over anhydrous Na<sub>2</sub>SO<sub>4</sub> weighed and extraction yields were calculated. Finally the obtained Eos were and stored at -20°C until use.

## 3. References

Sadgrove, N. and Jones, G. (2015). A Contemporary introduction to essential oils: chemistry, bioactivity and prospects for Australian agriculture. *Agriculture*, 5, 48-102.