



Effect of Mixing Coffee with Some Therapeutic Potential Plants on Some Quality Indicators of the End Product: A Case Study

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Abstract: The paper proposes a new direction of preparing the coffee „dark roast” [originating from the Asia-Pacific (marine-like granulation)], mixed with condiment/aromatic plants (thyme, mint, lavender). Method of preparation: French press – patented by Italian designers Attilio Calimani and Giulio Moneta in 1929. The recipe was adapted, by integrating aromatic plants: 18 g of coffee; 2 g of aromatic plant; 330 mL water, $t^{\circ}\text{C} \approx 100$; infusion time of 5 minutes. The products obtained were physical-chemical: polyphenols (90.18-101.68 $\mu\text{g/mL}$), pH (5.64-5.82), grade Brix (0.4-0.8), free acidity (0.06-0.14 mg NaOH/g) and sensory support with the help of 15 respondents. From a sensory point of view, the mint infusion is ranked 1st (17.6 points), even if the physical-chemical analysis classifies it as average.

• Introduction

Arabica, native to the mountain areas of southwestern Ethiopia, accounts for between 70÷75% of the world production. The chemical compounds present can be classified as soluble and insoluble in water. Soluble compounds are represented by caffeine, trigonelline, nicotinic acid (niacin), at least 18 chloric cyanic acids, mono-, di- and oligosaccharides, some proteins and minerals, and carboxylic acids. Water insoluble components include cellulose, polysaccharides, lignin and hemicellulose, as well as some proteins, minerals and lipids. The particle size (granularity) conditions the time of release of the flavour (the passage of the water-soluble substances), but also the way the drink is prepared, which is why espresso coffee is finely ground and espresso coffee prepared with the *French press* is coarse (similar to cornflour).

• Material and method

Materials: 1) raw material: *dark roast* (*coquam tenebris*) (*Arabica*) – the beans are roasted (dark), in the range 240-250°C, characteristic taste of tar and coal; 2) auxiliaries: mint (*Mentha piperita* L, *Lamiaceae* family), lavender (*Lavandula*), thyme (*Thymus serpyllum*). **Method:** **French Press** proposed method (recipe) (flavoured coffee): blend coffee with herbs in dry and ground state; the determination (by repeated tests) of the mixing masses (coffee/plant/water) in relation to the standard recipe, finally reaching a ratio of **2 g plant/18 g coffee/330 mL water**, with a maintenance time of **5 minutes**.

• Results and discussions

Based on the bibliographical study, preliminary attempts to discover new combinations of flavours and tastes of such a well-known energy drink came off. **Phenolic:** a maximum (101.68 $\mu\text{g/mL}$) for the control sample and a minimum (90.18 $\mu\text{g/mL}$) for the mint sample. **pH values** analysed are comparable in the range of values 5.64÷5.82. In this paper, the control pH is 5.64 relative to a high **acidity** of 0.14 mg NaOH/g. The same may be said for coffee mixed with lavender (pH=5.82→AI=0.13 mg NaOH/g). **Total sugar** ($^{\circ}\text{Bx}$): an increase in the weight of sugar in the thyme-flavoured sample (0.8%), probably due to a high level of extractable sugars present in the plant (Fig. 1). Sensory analysis data were quantified and presented centrally as an arithmetic mean (table 1). The score reveals that the mint mixture ranks first, even if the physical-chemical analysis ranks it as mean.

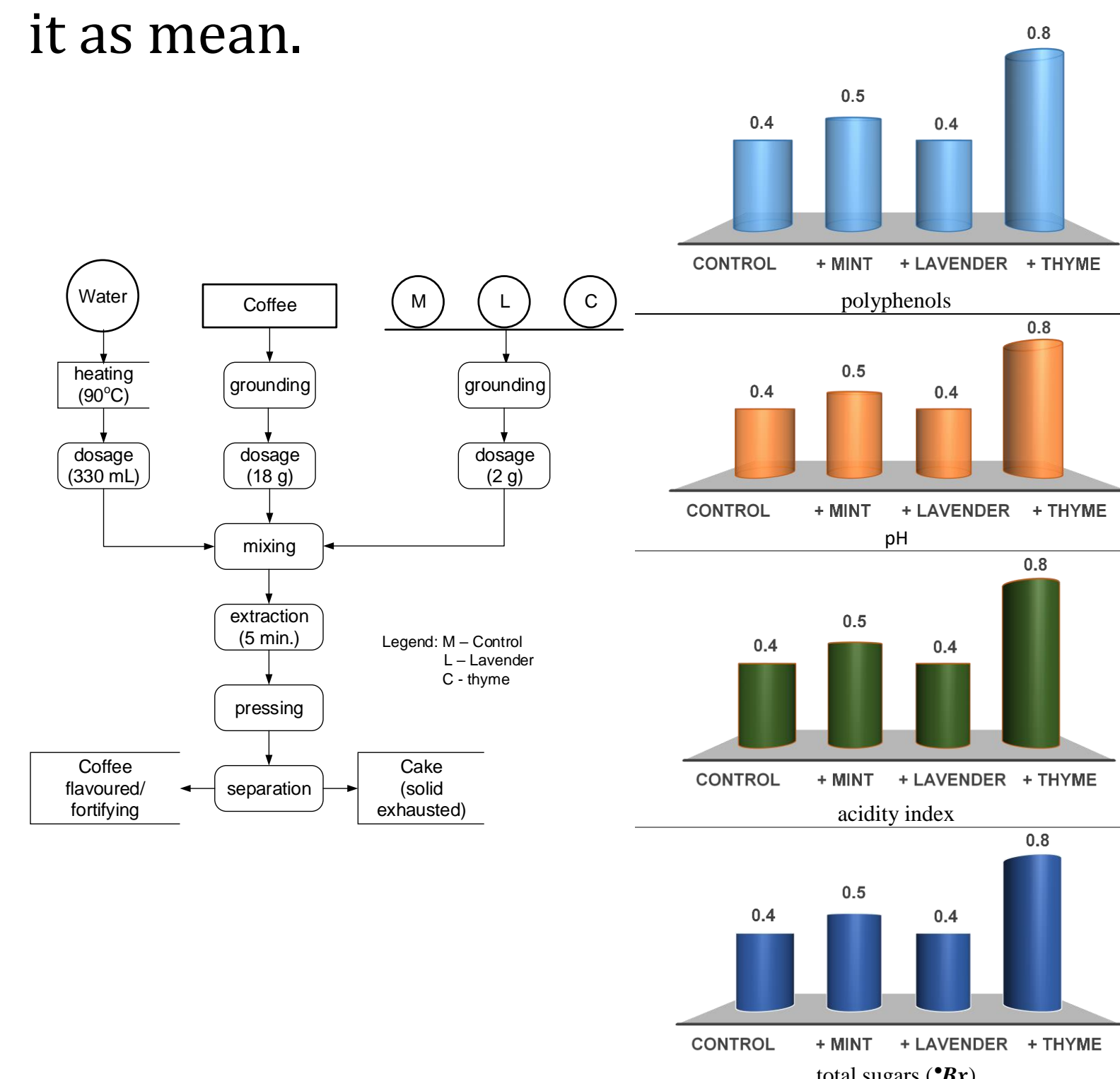


Figure 1. Block diagram of obtaining flavoured coffee and evolution physical-chemical properties.

Feature	control	+mint	+lavender	+thyme
colour	3	2.6	1.3	2
clarity	2.3	2	2	2
aroma	4.3	5.5	4.3	3.5
taste	5	5.5	5	3.5
smell	2	2	1.8	1.4

Table 1. Sensory analysis summary.

• Conclusions

For the introduction of new products or product improvement, it is recommended to study in detail raw material, auxiliaries, influence induced by operations carried out (especially thermal and mass transfer ones), along the cultivation-harvest-processing-consumption chain. Subsequently, the results obtained should be compared and analysed with sensory results.

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