Chapter 4

ANALYSIS OF ANTIOXIDANT CAPACITY OF COMMERCIAL *Myrtus communis* ESSENTIAL OIL BY SPECTROPHOTOMETRIC METHOD

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INTRODUCTION

Myrtus communis L. belongs to the Myrtaceae family. The Myrtaceae family includes 145 genera and 5500 species (1). It is a plant species belonging to West Asia, Southern Europe, and North Africa (2, 3). It is common in the Mediterranean region. Myrtle is an endemic plant known as murt or hambelis (4). *M. communis* is one of the prominent medicinal and aromatic species in the Myrtaceae family (5). *M. communis* can reach an average height of 2-4 meters. Its leaves are hairless, glossy, dark green, perennial herbs. Its fruits are hairless, pea-sized, hard, and oval in appearance. The flowering period of the *M. communis* plant is in the summer months. Ripe fruits taste sweeter than unripe fruits. It is drought resistant because it needs very little water (3, 6-10). Its flowers are star-shaped, white or pink in appearance, and fragrant (11). The leaves, fruits, and underground roots of *M. communis* are the parts traditionally recommended for use in folk medicine (12). Traditional medicinal uses of *M. communis* leaves in Algeria include the treatment of sinusitis, otitis, respiratory disorders, bronchitis, hemorrhoid, and diarrhea (13). *M. communis* leaves are generally preferred in the cosmetics industry in Turkey, and its fruits are also preferred in villages as an antiseptic (14). Some studies reveal the sedative effect of *M. communis* due to its anxiolytic and muscle relaxant properties without anticonvulsant effects (15, 16). The aroma of the essential oil (EO), which is present in the plant's abundant

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extract showed higher antioxidant activity than the essential oil included in this study (88). This difference may be due to the methods used while obtaining the essential oil, or to the use of leaves only.

4. CONCLUSION

Myrtle EO has been utilized for centuries as a disinfectant, antiseptic, and in the treatment of various diseases. After it was revealed that myrtle EO has antioxidant properties, it has taken its place in the food industry. In this study, the antioxidant properties of commercially available *M. communis* EO were investigated. In this study, which we conducted using the DPPH method, the IC_{50} value was examined and EC_{50}, ARP, and AEAC values were calculated according to this result. When the results were examined, it was seen that *M. communis* EO was a natural antioxidant source.

Instead of commercially procuring *M. communis* EO, the EO can be obtained and studied by using distillation, extraction, or mechanical methods. However, for this, the periods when the EO content in the leaves of the plant is at the highest level should be preferred. Evaluation of the antioxidant capacity of EO using different methods will contribute to the literature.

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