

Logic Programming and Artificial Neural Networks in Pharmacological Screening of *Schinus* Essential Oils

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Abstract—Some plants of genus *Schinus* have been used in the folk medicine as topical antiseptic, digestive, purgative, diuretic, analgesic or antidepressant, and also for respiratory and urinary infections. Chemical composition of essential oils of *S. molle* and *S. terebinthifolius* had been evaluated and presented high variability according with the part of the plant studied and with the geographic and climatic regions. The pharmacological properties, namely antimicrobial, anti-tumoural and anti-inflammatory activities are conditioned by chemical composition of essential oils. Taking into account the difficulty to infer the pharmacological properties of *Schinus* essential oils without hard experimental approach, this work will focus on the development of a decision support system, in terms of its knowledge representation and reasoning procedures, under a formal framework based on Logic Programming, complemented with an approach to computing centered on Artificial Neural Networks and the respective Degree-of-Confidence that one has on such an occurrence.

Keywords—Artificial neuronal networks, essential oils, knowledge representation and reasoning, logic programming, *Schinus molle* L, *Schinus terebinthifolius* raddi.

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