

## Chapter 24

# The Chemical Constituents, Anti-Inflammatory, Anti- Oxidant, and Ethnomedicinal Properties of *Aloe barbadensis*

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### ABSTRACT

*Aloe vera is a perennial, drought-resisting, succulent plant belonging to the Asphodelaceae family that has a long history of having many tremendous medicinal and anti-inflammatory as well as anti-bacterial properties. This chapter highlights the great potentials of the aloe vera species. Desk study and document analysis guided the systematic and extensive review of both published and unpublished resources on the Aloe vera Species. The chapter contends that horticulturists and plant scientists in the field of agriculture and medicine must pay attention to the Aloe vera as a medicinal plant that possesses the most powerful antibacterial and anti-inflammatory properties, which protects the body against constipation through enhancing the body metabolism, skin, and worm infestations.*

DOI: 10.4018/978-1-6684-3546-5.ch024

## **INTRODUCTION**

Aloe vera is a spiky cactus-like xerophytes clump forming perennial, drought-resisting, succulent plant with thick fibrous root (Ahlawat & Khatkar, 2011) belonging to the *Asphodelaceae* family. Specifically, the Aloe species is a member of the tree Lily family together with onion, garlic and turnip (Pandey & Singh, 2016). In terms of physiology and phenology, Aloe vera belongs to a large class of plants known as “xeroids” characterized for its ability to close its stomata completely to avoid loss of water. This adaptation allows the Aloe vera plants to survive long and extreme drought periods (Akinyele & Odiyi, 2007). The Aloe vera plant has been mentioned throughout history and has been ranked as one of the leading and all-purpose plants in the world (Bai, Deva, Madan, & Sharma, 2013). Ahlawat and Khatkar (2011) contend that the popularity of Aloe vera is initiated by naturopaths, yog gurus, alternative medicine promoters and holistic healers. The name, Aloe, is derived from the Arabic “alloeh” or Hebrew “halal” meaning bitter shiny substance. *Aloe vera* is a species of Aloe that is particularly popular for its medicinal properties and as such is often referred to as the miracle plant (Shende & Telrandhe, 2017). In Ayurveda, Aloe is referred to as ‘Kumari’ meaning ‘young girl’ because it is believed among the Indians as giving users of products from them, youthful vigor, energy and vitality. Greek scientists regarded *Aloe vera* as *the universal panacea* and the Egyptians call Aloe “the plant of immortality” (Itrat & Zarnigar, 2013). It has a vast traditional role in indigenous system of medicine like homoeopathy (Baby & Justin, 2010). Aloe vera (*Aloe barbadensis* Miller) is a perennial plant of the *Xanthorrhoeaceae* family (USDA, 2012). It has been designated its own family, known as *Aloeaceae* (Eshun & He, 2004). This plant grows well in dry conditions which pretty much get sunlight (Kumar & Yadav, 2014). Aloe vera species cannot thrive in frost or freezing temperatures but only in warm tropical areas (Pandey & Singh, 2016). Aloe vera species can be found in Mexico, Pacific Rim countries, Central America, South America, The Caribbean, Australia, India and Africa.

*Figure 1. Aloe barbadensis* Miller



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