



Phytochemical and Pharmacological investigation of extract of *Manilkara zapota* Linn. Seeds

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ABSTRACT

Manilkara zapota is commonly named Chiku. *Manilkara zapota* belongs to the family Sapotaceae. It cultivated for its delicious fruits. It is an evergreen plant, every part of the tree used for various ailments in traditional medicine. The scenario of the present study is investigation of the phytochemical and pharmacological action of *Manilkara zapota* seed extract. Ethanolic extract of seed evaluated for phytoconstituents and pharmacological activity. Ethanolic extracts shows presence of alkaloid, flavonoid, glycoside, saponin, tannins and phenol. A plant shows excellent immunomodulatory activity by Neutrophil adhesion test. Ethanolic extracts *Manilkara zapota* seeds doses showed a significant increase in the neutrophils adhesion to nylon fibers. This might be due to the up-regulation of the $\beta 2$ integrins, present on the surface of the neutrophils through which they adhere firmly to the nylon fibers. Hence, it was inferred that causes stimulation of neutrophils towards the site of inflammation. It shows significant immunostimulant activity. From the ethanol extract active constituent quercetin is isolated and characterized by FT-IR, NMR, UV and MASS spectroscopy.

Keywords: *Manilkara zapota*, Seeds, Neutrophil adhesion test, Immunomodulatory activity

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INTRODUCTION

Sapotaceae-family is a varied & eco-logically significant group of eight hundred varieties & nearly 65 genera [1]. These include shrubs and trees that extensively scattered in tropical-regions being American, Asian & African types [2]. The members of this family can be effortlessly acknowledged with characteristic creamy-latex & alternating leather leaf having comparable derived veins. The genus-*Manilkara* comprises about 30-32 species, most of them have economic importance & commercial advantages for fruits, wood & latex. Some of the related varieties are *Calocarpum-mamosum*, *Calocarpum-viride* & *Chrysophyllum-cainito* [3].

Manilkara zapota Linn seed (*Sapotaceae*) is vital fruit based medicinal Indian crop. Antioxidant nature of fruit is highly effective to counteract oxidative-stress [4,5]. The poly-phenolic, steroidal, Saponin, terpene, vitamin & carotinoid rich nutraceutical properties of fruits make the usefulness of drug. Phyto-chemical constituents similar to phenols, ascorbic-acid & carotenoid create straight impact on radical-scavenger perspective. Antioxidant can overcome or reduce degeneration speed in disorders like malignancy, rheumatoid-arthritis, heart-diseases, and neuronal disorders [6]. The seed of *Manilkara zapota* Linn are aperients, diuretic tonic, febrifuge and arthritic activity [7].

MATERIAL AND METHODS

Collection:

The new seeds of *Manilkara zapota* were collected from Kavate Ekand, near to Sangli in July and August 2020.

Authentication

From the part of plant like fruits flower and leaves it was studied and authenticated by Mr. M. D. Wadmare, H.O.D. of Botany Department, Smt. K.W. C. Sangli, Maharashtra, India.

Drying of plant material [8]

The 1 kilogram of seeds were cleaned and collected. It was separated and wipes carefully to eradicate muck and fragments. Seeds were spread and shade dried for 20-25 days. After natural drying of seed weighed, it was found 780 g. Dried seeds were coarsely powdered.