

Abstract

The medicinal vine *Abrus precatorius*, sometimes referred to as Saga, is indigenous to tropical Asia and India. Because of its pharmacological qualities, it has a long history in traditional medicine. According to a recent study, Saga may have medicinal uses in the area of respiratory health, particularly given its effectiveness in treating diseases like COVID-19. Despite its pharmaceutical prospects, the biosynthesis regulation of its active compound remains limited, especially with regard to its notable triterpenoid saponin called abrusosides. In order to address this gap, the present study investigates the role of methyl jasmonate in increasing the accumulation of triterpenoid compounds. Methyl jasmonate is known to induce secondary metabolite production, such as triterpenoids, as part of the plant defense response. Inspired by several studies that reported an increase in triterpenoid accumulation post methyl jasmonate treatment, this study aims to test the effect of methyl jasmonate treatment at various concentrations on the production of triterpenoid saponins in *A. precatorius*. This study evaluated the effect of methyl jasmonate on triterpenoid saponin accumulation in *Abrus precatorius* leaves and roots. The highest saponin levels were observed at 0.1 mM methyl jasmonate, while higher concentrations (0.3 mM and 0.5 mM) led to a decline. These results suggest that low-dose methyl jasmonate optimally induces saponin biosynthesis, whereas higher doses may suppress it due to stress-related feedback.

Keywords: ***Abrus precatorius*, methyl jasmonate, saga, saponin, triterpenoid**