Lavandula is a plant species belonging to the family Lamiacea and has 39 different species originating from the Mediterranean. It is one of the most popular plants used since ancient times as medicinal, aromatic and ornamental plant in the world. In addition to being a valuable ornamental plant with scented and decorative flowers, its essential oil obtained from flowers is an important oil for aromatherapy, cleaning products, perfumes, massage oils and cosmetics due to their antiseptic and antifungal properties. Lavandula oil has also antimicrobial, antibacterial, anti-depressive, sedative and dermatologic activities. To get secondary metabolites with high quality and quantity, some exogenous treatments could be applied successfully in plants. Brassinosteroids (BRs), new generation steroid phytohormones, play significant roles in increasing different secondary metabolites. The objective of this study was to determine the effect of foliar application of 24-epibrassinolide (24-eBL), a brassinosteroid analogue, on growth and secondary metabolite production in Super A lavandin cultivar (Lavandula intermedia). For this aim, 24-eBL at four different concentrations (0, 0.75, 1.5 and 2.25 mg l⁻¹) was applied to six-year old lavandin plants twice. The first application was done at the beginning of the budding phase and the second application was done 10 days after the first application. As a result of this study, 24-eBL significantly increased fresh and dry stem flower weights, dry stemless flower weight, essential oil and total phenolic contents compared to the control plants. 24-eBL modified also essential oil composition. Linalool, linalyl acetate, camphor, borneol, 1,8 cineol, geraniol and lavandulyl acetate were determined as main components of lavandin oil. 24-eBL applications were not effective on linalool accumulation. Linalyl acetate and 1,8 cineol increased with 24-eBL application while the highest contents of camphor, borneol, geraniol and lavandulyl acetate were obtained from the control oil. It was determined that 1.5 mg l⁻¹ of 24-eBL was the most suitable concentration providing the highest dry stemless flower weight, essential oil, phenolic content and linalyl acetate content. To conclude, 24-eBL may be promising compound for use in lavandin cultivation.