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Evaluation of Hydrocotyle javanica Thunb. for it's application for combating cancer and and against multidrug resistant organisms.

Medicinal plants have long been valued in traditional medicine for their diverse bioactive compounds, offering promising therapeutic potential across multiple health challenges. This study examines the efficacy of selected medicinal plants in anticancer therapy, combating multidrug-resistant (MDR) bacteria, antioxidant activity, and wound healing. Through a detailed analysis of phytochemical constituents, including alkaloids, flavonoids, phenolic compounds, and terpenoids, we explore their mechanisms of action. These compounds demonstrate anticancer effects by inducing apoptosis and inhibiting tumor proliferation while their antibacterial properties target MDR bacterial mechanisms, including efflux pumps. Additionally, their potent antioxidant capabilities neutralize reactive oxygen species, reducing oxidative stress, and their wound-healing properties promote tissue regeneration through anti-inflammatory and collagen-enhancing effects. In vitro studies on Hydrocotyle javanica Thunb. highlights the synergistic potential of these phytochemicals in addressing complex health issues. This research emphasizes the need for further clinical trials to validate the efficacy and safety of these plant-derived therapies, paving the way for their integration into modern medical practices for holistic disease management.

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