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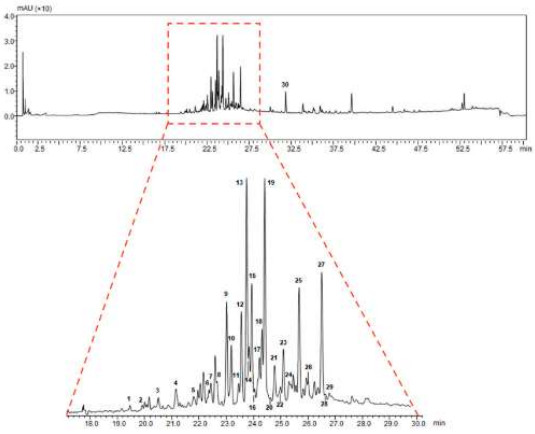
Introduction

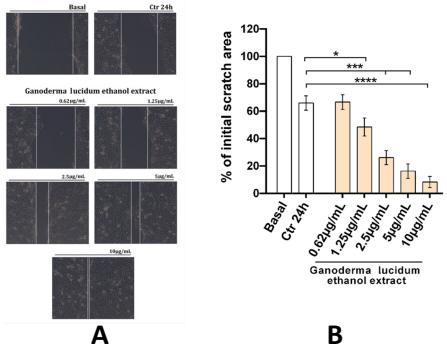
Ganoderma lucidum, is also known as "the fungus of immortality". The pharmacological properties of *G. lucidum*, such as anti-inflammatory, antioxidant, antiaging, immunomodulatory and antitumour activities[1], are due to its peculiar chemical composition in bioactive compounds such as polysaccharides, terpenoids, nucleotides, steroids, fatty acids, proteins and glycopeptides[2]. The present study reported the effect of *G. lucidum* on human keratinocytes as an in vitro skin model for evaluation of its dermatological applications.

Results

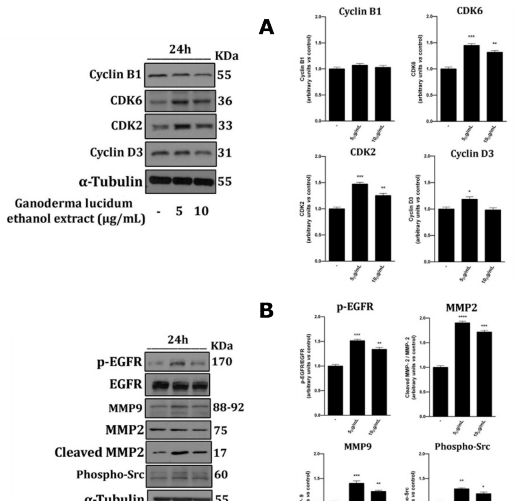
The ethanol extracts of *G. lucidum* were analysed by UHPLC-ESI-IT-TOF.
30 triterpenoids identified in the *G. lucidum* extract.



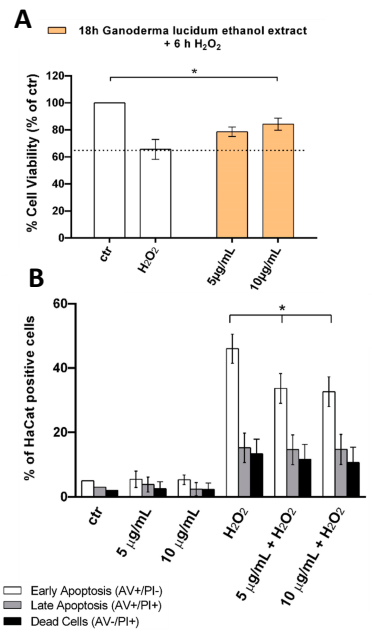
In order to assess the potential effect of *G. lucidum* ethanol extract on the migratory function of HaCaT cells, we performed a scratch wound assay treatment for 24 h. In the presence of the *G. lucidum* extract, we observed an enhancement of wound healing at all tested doses.



We determined by Western blot analysis the status of the same proteins involved in both cell cycle progression and cell migration.
The *G. lucidum* ethanol extract increased the expression of cell cycle regulation proteins such as cyclin D3, CDK2 and CDK6 (**Fig. A**). Besides, it induced MMP2 and MMP9 expression (**Fig. B**), and then subsequently triggered the EGRF signalling cascade. Activation of the downstream EGFR pathway, inducing phosphorylation of Src (**Fig. B**), suggested that exposition to *G. lucidum* extracts provided a driving force in human keratinocyte migration.



Cell viability was reduced to 35.4% at 200 µM H_2O_2 (**Fig. A**).
After 18 h pretreatment of keratinocytes with the *G. lucidum* ethanol extract, cell viability was increased with 5 and 10 µg mL^{-1} doses (**Fig. A**). **Fig. B** shown a cell death analysis by annexin-V and propidium iodide.
G. lucidum pretreatment before H_2O_2 exposure resulted in a significant reduction of apoptosis and particularly of early apoptosis.



Conclusion

In this work, we aimed first to assess the chemical composition of triterpenic acids in the fruiting body of the fungus, highlighting its potential as a valuable source of bioactive compounds, and then to provide any further pharmacological evidence of how the ethanol extract of *G. lucidum* is able to boost the wound