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Abstract:

Asparagus officinalis is a dietary vegetable which is consumed worldwide. It has been reported for various biological activities, such as antioxidant, anti-inflammatory, antibacterial, immunostimulant, anti-oxytocic, reproductive, and antihepatotoxic activity [1]. However, the beneficial effects on the skin has not been reported before. Therefore, this research aimed to investigate the antityrosinase and anti-ageing activity of *A. officinalis* extracts. The dried powder of *A. officinalis* was macerated in various solvents, including propylene glycol, glycerine, ethanol, and the mixture of the previous solvents. Various factors, including the part used (i.e. shoot and stem), drying temperature (i.e. 50°C and 80°C), and drying duration (24 h and 32 h) on the flavonoid content and biological activities were also investigated. Total flavonoid content was investigated by aluminum chloride colorimetric method [2], whereas, antityrosinase and anti-ageing activity were investigated by in vitro spectrophotometric methods [3-4]. The results noted that ethanolic extracts of *A. officinalis* shoot contained the highest flavonoid content of 131.8 ± 124.3 µg quercetin/g extract. However, the flavonoid content significantly decreased with the increasing of drying temperature and drying duration ($P < 0.05$). *A. officinalis* extracts possessed moderate antityrosinase activity with the inhibition against tyrosinase on tyrosine and L-dopa cleavage of $17.6 \pm 2.6\%$ and $38.1 \pm 1.3\%$, respectively. Interestingly, the ethanolic extracts of *A. officinalis* stem possessed potent anti-ageing activities with the inhibition against collagenase, elastase, and hyaluronidase of $83.4 \pm 1.5\%$, $70.4 \pm 4.1\%$, and $75.2 \pm 1.0\%$, respective. The anti-ageing activity of *A. officinalis* stem extracts were comparable to that of ascorbic acid and epigallocatechin gallate. The most suitable condition for *A. officinalis* dried powder preparation was drying at 50°C for 24 h since higher drying temperature and longer drying duration led to lower anti-ageing activities. Therefore, the ethanolic extract *A. officinalis* stem was very attractive for using as anti-ageing active compound in cosmetic and cosmeceutical products.

References

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