

Investigation on the technology trend in *Platycodon grandiflorum* by the patent analysis

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Abstract

The *Platycodon grandiflorum* (balloon flower) has been used as food material and traditional medicine in Asia. The roots have been used in traditional medicine to treat coughs, upper respiratory infections, and sore throats. Using 1,603 valid patents from 6 countries, we analyzed the patent trend based on year, countries, applicants, and technology. The technologies are categorized into 6 groups which include material, additives, manufacture, cultivation, breeding and seed. The technology competitiveness of countries were analyzed with quantitative factors such as cites per patent, patent impact index, patent family size and technology strength. In comparison with other countries in the patent index, South Korea shows an increasing trend in patent numbers and total leverage ability, although the individual technology is lower than Japan and USA. Our study provides information on technical trend to support the performance of new projects on balloon flower.