A literature review was conducted in search of medicinally important species in the genera *Datura* L. and *Solanum* L. (Solanaceae) within the framework of the PROSEA (Plant Resources of South-East Asia) project. Nine species, *Datura metel* L., *D. stramonium* L., *Solanum americanum* Mill., *S. erianthum* D. Don, *S. ferox* L., *S. melongena* L., *S. nigrum* L., *S. torvum* Sw. and *S. violaceum* Ortega are used as important medicinal plants in South-East Asia. The taxonomy, origin, distribution and medicinal properties and uses are reviewed for both genera and selected species. The distribution and uses of several minor medicinal *Datura* and *Solanum* species, which occur in South-East Asia, are also briefly reviewed.

The genus *Datura* was found to be distinct from the closely related *Brugmansia* Pers. The taxonomy of the small genus *Datura* is fairly well established while that of the large genus *Solanum* still is in a state of flux. Much still remains to be done in both genera, however, especially at an infraspecific level. The origin of the genus *Datura* seems to lie in the New World, while species in the large genus *Solanum* have evolved both in the Old and the New Worlds.

Chemically, the genus *Datura* is characterised by tropane alkaloids, including hyoscyamine and scopolamine. The medicinally important species in the genus *Solanum* contain mainly glycoalkaloids, including spirosolanes and solanidanes. In South-East Asia, *Datura* is used for example in the treatment of asthma, haemorrhoids, rheumatism, headache, toothache, as an anaesthetic and against parasites. *Solanum* species are commonly used for gastro-intestinal and skin problems, fevers, and diseases of the respiratory and urinary tracts. Many *Solanum* species are also important as food plants. When comparing the use of the selected *Solanum* and *Datura* species all over the world, all appear to be used medicinally in very similar ways. The genera differ in their other uses: many *Solanum* species are commonly used for food, while *Datura* species are frequently used for hallucinogenic purposes.