

Senecio inaequidens [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name narrow-leaved ragwort (English), guano bush (English), senecione Sudafricano (Italian, Italy), séneçon du Cap (French, France), Starcek úzkolistý (Czech, Czech Republic), Starzec nierównozębny (Polish, Poland), Smalbladet Brandbæger (Danish, Denmark), small-leaved groundsel (English), South African ragwort (English, Great Britain), sénecon Sud-africain (French, France), Bezemkruiskruid (Dutch, Netherlands), groundsel (English), Südafrikanisches Greiskraut (German, Germany), Ungleichzähniges Greiskraut (German, Germany), Buurivillakko (Finnish, Finland), Boersvineblom (Dutch, Netherlands), Schmalblättriges Kreuzkraut (German, Germany), Boerstånds (Swedish, Sweden)

Synonym *Senecio burchelli*
Senecio carnulentis
Senecio douglasii
Senecio vimineus
Senecio harveianus
Senecio lautus
Senecio paniculatus
Senecio reclinatus
Senecio fasciculatus minor

Similar species *Senecio douglasii*, *Senecio harveianus*, *Senecio lautus*, *Senecio lythroides*, *Senecio madagascariensis*, *Senecio malacitanus*, *Senecio paniculatus*

Summary *Senecio* (Asteraceae) contains circa 1500 species worldwide of which 133 are considered weeds. *Senecio inaequidens* is a dominant invasive species throughout western Europe and is one of the most rapidly spreading introduced plant species in Europe.



[view this species on IUCN Red List](https://www.iucnredlist.org/species/1458)

Species Description

Senecio inaequidens is a perennial herbaceous or woody shrub, up to 100 cm tall, spherically shaped, rising from a shallow taproot. The stems and leaves can be described as follows: stems erect, leafy, rising from the woody base, numerous branched and glabrous, but sometimes sparsely hairy; leaves alternate, usually sessile, occasionally petiolate, with the blade bright green, simple and slightly thickened, usually with the base clasping the stems, basal leaves sessile, 3 to 14 cm long and 0.3 to 1 cm wide and have linear to elliptic-lanceolate blades with acute apices. The name 'inaequidens' means 'irregular teeth' in Latin and refers to the margins of the leaf blade, which are irregularly-toothed. The upper leaves are shortly petiolate, subsessile or sessile and occasionally pinnately-lobed. The inflorescence is an open, terminal or axillary, corymbose panicle ranging from 80 to 100 per plant. Radiate capitula 18 to 25 mm in diameter; with about 20 involucre bracts are characteristic of the species. The bracts are narrowly ovate with acute apices, more or less glabrous, keeled, 5 mm long and resinous. The calyx bracts, 8 to 12, have acute apices, are more or less glabrous and dark tipped. The ray florets, 7 to 13, are female, with bright yellow ligules, which become revolute. A cypsela (fruit) is 2.0 to 2.5 mm long, cylindrical, pubescent between ribs with a white pappus, 2 to 3 times as long as the cypsela and readily detached. (Dimande *et al.* 2007)

Notes

Pyrrolizidine alkaloids produced by *Senecio* are known to accumulate in roots (Hartmann 1994, in Medina *et al.*, 2003), and allelopathy may be a component of *Senecio* ability to invade disturbed areas. These chemicals are also toxic to many animals such as livestock; *S. inaequidens* is often avoided by grazing animals which contributes to the success of the plant and its competitive advantage over other species found in Mediterranean pastures (Bossdorf *et al.*, 2008). Bossdorf *et al.*, (2008) found that plants from introduced populations had a significantly lower reproductive output, but higher allocation to root biomass and they were more tolerant to insect herbivory. Invasive populations of *S. inaequidens* in Europe were found to be significantly larger and less parasitised than plants in native South African populations (Prati & Bossdorf 2004, in Bossdorf *et al.*, 2008).

Lifecycle Stages

Senecio inaequidens is a short-lived perennial, with a life span of 5-10 years (Brunel 2003, in EPPO 2006b).

Uses

The species is not used in Europe in any way. Reportedly the leaves of *Senecio inaequidens* are used as food in specific populations of Southern of Africa. Antioxidant, anti-diabetic and cytotoxic testing of *S. inaequidens* was conducted by Filomena and colleagues (2006); results suggested the extracts may confer anti-diabetic properties.

Habitat Description

Habitat preferences: ruderal areas, rocky outcrops, sand dunes (Belgian Forum on Invasive Species, 2008). In its native region *S. inaequidens* colonises steep moist grassy slopes and sand and gravel banks of periodic streams at elevations of between 1400 and 2850 m (Hilliard 1977, in Heger & Böhmer 2006). In South Africa it is also found on roadsides, in areas damaged by fire and on coastal dunes of the Eastern Cape Province, and in Lesotho, Botswana, Namibia and Mozambique (Heger & Böhmer 2006). In South Africa the species colonises a wide ecological range of areas from dry to humid habitats, from stone to clay soils, and from exposed to shaded locations (Werner *et al.* 1991, *cf.* Adolphi 1997, in Heger & Böhmer 2006).

S. inaequidens can grow under temperate and Mediterranean climates. It is opportunistic and has the ability to colonise a wide range of habitats including the following vegetation zones: temperate deciduous forests, temperate steppes and Mediterranean sclerophyllous forests and sclerophyllous shrubs (EPPO 2006b). In Italy *S. inaequidens* spreads along roads and torrents and up to altitudes of 1420 meters (Brandes 1999). It reaches the highest cover at well drained places lying in the full sun with a vegetation cover of between 20 and 85 percent (Brandes 1999). The species even invades in montane pastures and montane (subalpine) ruderal vegetation (Brandes 1999). In other parts of its range it has been observed from coastal areas up to 1900 m altitude (EPPO 2006b). It is also found in natural environments such as dunes and cliffs in littoral areas, and temporary ponds in France (Brunel 2003, in EPPO 2006b). Unusual habitats include lawns and the facade of the cathedral at Cologne, Germany (Heger & Böhmer 2006).

S. inaequidens colonises open and disturbed lands, wastelands, fallows, railway tracks, roadsides, crops (vineyards), burnt land and pastures (EPPO 2006b). In Central Europe *S. inaequidens* spreads rapidly along motorways and railroad tracks and grows predominantly in ruderal habitats and occasionally old fields in early successional stages (Bossdorf *et al.* 2008). In Europe *S. inaequidens* grows on warm and dry ruderal sites and is often found associated with railroads and gravel areas, highways, river ports, logging areas, industrial sites, disused quarries, storm-damaged forests and on flat roofs or in flower tubs. It also occurs on natural sites such as in volcanic soils, on rocky sites (in the central Rhine valley, Germany) and in coastal dunes of Belgium and Germany (Heger & Böhmer 2006).

Disturbance has been shown to enhance invasion (Hobbs & Huenneke 1992, in Cano & Sans 2007) by supplying aliens with new resources, as a consequence of the decline in the use of the resources by native vegetation. Garcia-Serrano and colleagues (2004) also found that shrubs facilitated the recruitment of *S. inaequidens*; the presence of open shrublands can be a driving force for the invasion processes of introduced species in Mediterranean communities (Cano & Sans 2007). Shrubland was the habitat that most favoured recruitment in natural conditions, however, grassland was the most suitable habitat in the short term (Cano & Sans 2007). Severe disturbances such as fires could also occur in forests and allow the invasion of grass and shrub lands (Cano & Sans 2007).

Mean annual rainfall ranges from 500 to 1000 mm. Mean annual temperature ranges from 10 deg;C to 20 deg;C. Mean maximum temperatures are 30 deg;C to 35 deg;C. Mean minimum temperatures are minus 5 to 0 deg;C. The absolute minimum temperature is minus 15 deg;C (EPPO 2006b).

Reproduction

Phenological studies of *Senecio inaequidens* have shown a long period of flowering and seeds production (Pace & Tammaro 2006). *S. inaequidens* produces flowers mainly in spring and autumn, but it may flower all year round (Dimande *et al.* 2007). In Spain the species is known to geminate in the spring and in the fall (Cano & Sans 2007). In France flowering occurs from April to January (EPPO 2006b). On average 10 000 seeds are produced per plant and per year; achenes (dry fruit-like propagules) may remain viable for at least 2 years when stored dry (Ernst 1998, in EPPO 2006b). In south-western Germany *S. inaequidens* produces flowers from July to December (Heger & Böhmer 2006).

Germination can take place during most of the year and may be favoured by compacted soils (see EPPO 2004, in Heger & Böhmer 2006). In controlled studies by López-García & Maillet (2005) *S. inaequidens* germinated over a wide temperature range (from 14 deg;C/6 deg;C day/night temperatures to a constant temperature of 30 deg;C).

General Impacts

Senecio inaequidens is a declared noxious weed by the United States Department of Agriculture Animal and Plant Health Inspection Service. The Global Compendium of Weeds lists it as an agricultural and environmental weed. It is included in the European and Mediterranean Plant Protection Organization List of Invasive Alien Plants under the Phytosanitary EPPO A2 alert list, however, it is not currently regulated by any European country (EPPO 2006b). The plant is listed as a noxious weed in Hawaii. It is a declared pest plant in Queensland and New South Wales (Australia) and is a prohibited species in Western Australia. It is reported as a weed in vineyards and reduces the value of invaded pastures (Michez 1995, Mayor 1996, Brunel 2003, in EPPO 2006b).

Large quantities of *Senecio* species ingested by livestock over a short period of time induce acute poisoning which leads to death. A large single non-lethal dose or multiple lower doses ingested over a longer period may cause chronic diseases including anorexia, diarrhoea and nervous system symptoms including incoordination of the hind limbs, circling, apparent blindness and tremors (Dimande *et al.* 2007).

Invasive plants are capable of modifying ecosystem function. In a study by Dassonville and colleagues (2008) the impacts of highly invasive plant species, including *Senecio inaequidens*, on nutrient pools in the topsoil and the standing biomass was tested. Invaded plots had increased above-ground biomass and nutrient stocks in standing biomass compared to un-invaded vegetation. Enhanced nutrient uptake may be a key trait of highly invasive plant species.

German experts agree that *S. inaequidens* does not demonstrably pose a threat to indigenous species or plant communities at present as the plant rather appears to fill vacant ecological niches in Europe. It has not been investigated whether the species puts indigenous species at risk near natural sites but it has been observed that *S. inaequidens* forms dominant populations on rocky sites (Adolphi & Klingenstein Pers. Comm., in Heger & Böhmer 2006). It is impossible to exclude a threat to indigenous plant species of great importance to nature conservation (eg: blue lettuce *Lactuca perennis*). Its colonisation success on open rocky sites may pose a risk to endangered animal species (eg: Saltatoria - a division of Orthoptera including grasshoppers, locusts, and crickets). In coastal dunes it occurs especially in yellow dunes with marram grass (*Ammophila arenaria*) and in sea-buckthorn scrub (*Hippophae rhamnoides*) where it changes the floristic composition of the dune vegetation (Isermann Pers. Comm., in Heger & Böhmer 2006). In the French Mediterranean area it is reportedly a threat to native *Centaurea corymbosa* (Brunel 2003, in EPPO 2006b).

S. inaequidens is a cereal crop weed and in South Africa may find its way into bread causing toxicity in consumers and perhaps even death (Bromilow 1995, in Heger & Böhmer 2006). *S. inaequidens* toxins may also be detected in the milk of cattle which feed on the plant, although it is usually avoided by grazing animals. In France *S. inaequidens* can be found in vineyards and pastures and in Denmark the species has been found in apple tree orchards (Skovgaard Pers. Comm., in Heger & Böhmer 2006).

Because narrow-leaved ragweed is not susceptible to the most commonly used herbicide, glyphosphate, this plant causes additional annual expenditures of 100,000 Euros for control measures along railroad tracks in Germany (Reinhardt & Streit 2003).

Climate change can be considered to have favoured the invasion of *S. inaequidens* in Europe and the plant's ability to reproduce may increase considerably with the gradual warming of the climate (Heger & Böhmer 2006).

Management Info

Control of *Senecio inaequidens* is almost impossible once the plant is established (EPPO 2006b).

Monitoring: The identification of critical mechanisms that favour invasion is useful for local managers. One of the main outcomes of a Mediterranean study by Cano & Sans (2007) was to recommend a survey of open shrublands and grasslands during rainfall periods. A monitoring program is advisable in areas where *S. inaequidens* has either begun to exert massive colonisation pressure on locations outside of the ruderal sites preferred in the past or is capable of doing so (eg: in cereal cultures). A monitoring program should focus on expulsion mechanisms between *S. inaequidens* and thermophilous native species with poor competitive capacity, as well as on the potential impacts to agriculture and human health in terms of toxic contamination of produce (see General Impacts) (Heger & Böhmer 2006).

Field management: Reducing the risk of fire, avoiding overgrazing and sowing with perennial species with good ground cover such as *Trifolium* spp. are likely to limit the spread of *S. inaequidens* (Brunel 2003, in EPPO 2006b). From a management perspective it is clear that disturbance increases invisibility in all habitat types. Therefore disturbance should be reduced in natural ecosystems to minimize invasion by *S. inaequidens* (García-Serrano & Sans 2004).

Manual control: Hand-pulling or mowing before flowering repeated for several years has proven to be effective in some natural areas of the South of France (EPPO 2006b). However, other sources claim *S. inaequidens* is resistant and even promoted by mowing (Radkowsch Pers. Comm., Werner Pers. Comm., in Heger & Böhmer 2006). Non-specific control measures such as mowing may actually provide a competitive advantage for *S. inaequidens* over other ruderal plants (cf. also Guillerm *et al.* 1990, in Heger & Böhmer 2006). If using such a method monitoring and control must be carried out over several years to remove the seed bank. Hand-pulling is at best a method for small areas of establishment. Eradication has been achieved in Corsica in this way. It is essential to collect and destroy the plants which have been pulled out as they can still produce achenes (a type of dry fruit propagule) for two or three days following removal (EPPO 2006b).

Chemical control: It has been observed that this species is exceptionally resistant to herbicides (Hard Pers. Comm., in Heger & Böhmer 2006). In vineyards, treatment with low toxicity phytosanitary products has proved effective in the South of France (EPPO 2006b).

Biological control: The aphid *Aphis jacobaeae* is associated with the European native *Senecio jacobaea* and has been observed to attack *S. inaequidens* in France (Fort *et al.* 2003, in EPPO 2006b). The beetle *Longitarsus jacobaeae* (cf. Scherber *et al.* 2003, in Heger & Böhmer 2006) is another proposed biological control agent; the adults of these beetles accept *S. inaequidens* for feeding and mating (Scherber *et al.* 2003). However biological control may not be easy to apply in practice or may only be applicable for small areas (cf. EPPO 2004, in Heger & Böhmer 2006).

Pathway

Senecio inaequidens finds in Helsinki, Finland, point to the possibility of spreading achenes (dry fruits) on the surfaces of containers (Kurtto Pers. Comm., in Heger & Böhmer 2006). *Senecio inaequidens* may be transported over considerable distances in the profile of tires (Griese 1996, in Heger & Böhmer 2006). Conveyances via road and rail vehicles are considered a transport pathway for long distance movement of *Senecio inaequidens* (Ernst 1998, in EPPO 2006b).

Principal source: [Heger, T. and Böhmer, H.J., 2006: NOBANIS – Invasive Alien Species Fact Sheet – *Senecio inaequidens*. – From: Online Database of the North European and Baltic Network on Invasive Alien Species – NOBANIS](#)
[European and Mediterranean Plant Protection Organization \(EPPO\). 2006b. Data sheet on Invasive Plants *Senecio inaequidens*](#)

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BIBLIOGRAPHY

63 references found for *Senecio inaequidens*

Management information

Dauphin, Patrick., 2008. Colonization of *Senecio inaequidens* DC (Asteraceae) by *Longitarsus dorsalis* (F.) (Coleoptera Chrysomelidae) in Aude. Bulletin de la Societe Linneenne de Bordeaux. 36(1). 2008. 60.

de Villiers, Marienne S., John Cooper, Noel Carmichael, James P. Glass, Gordon M. Liddle, Ewan McIvor, Thierry Micol and Andy Roberts., 2006. Conservation Management at Southern Ocean Islands: towards the Development of Best-Practice Guidelines. Polarforschung 75 (2/3), 113 - 131, 2005 (erschienen 2006)

Summary: Available from: http://epic.awi.de/Publications/Polarforsch2005_2-3_6.pdf [Accessed 25 October 2009]

European and Mediterranean Plant Protection Organization (EPPO) 2006a. Distribution Maps of Quarantine Pests in Europe: *Senecio inaequidens*

Summary: Available from: http://www.eppo.org/QUARANTINE/plants/Senecio_inaequidens/SENIQ_map.htm [Accessed 30 January 2010]

European and Mediterranean Plant Protection Organization (EPPO) 2006b. EPPO Data sheet on Invasive Plants *Senecio inaequidens*

Summary: Available from: http://www.eppo.org/QUARANTINE/plants/Senecio_inaequidens/SENIQ_ds.pdf [Accessed 30 January 2010]
Heger, T. and Böhrmer, H.J., 2006: NOBANIS - Invasive Alien Species Fact Sheet - *Senecio inaequidens*. - From: Online Database of the North European and Baltic Network on Invasive Alien Species - NOBANIS www.nobanis.org. Date of access x/x/200x.

Summary: Available from: http://www.nobanis.org/files/factsheets/Senecio_inaequidens.pdf [Accessed 30 January 2010]

IUCN/SSC Invasive Species Specialist Group (ISSG), 2010. A Compilation of Information Sources for Conservation Managers.

Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

Reinhardt, Dr. Frank & Prof. Dr. Bruno Streit., 2003. Economic Impact of the Spread of Alien Species in Germany. Federal Ministry of the Environment. Nature Conservation and Nuclear Safety Research Report 201 86 211 UBA-FB 000441e On behalf of the Federal Environmental Agency

Sheppard, A.W., R.H. Shaw & R. Sforza. 2005. Top 20 environmental weeds for classical biological control in Europe: a review of opportunities, regulations and other barriers to adoption

Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.

Summary: This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

General information

Alien Species in Poland. 2008. *Senecio inaequidens* DC.

Summary: Available from: <http://www.iop.krakow.pl/ias/Gatunek.aspx?spID=294> [Accessed 18 March 2010]

Belgian Forum on Invasive Species (BFIS), 2008. *Senecio inaequidens* - South African ragwort Invasive Species in Belgium

Summary: Available from: <http://ias.biodiversity.be/ias/species/show/16> [Accessed 30 January 2003]

Boehmer, Hans Juergen., 2002. *Senecio inaequidens* DC. 1837 spreading in Germany: A current review. Floristische Rundbriefe. 35(1-2). April, 2002. 47-54.

Global Invasive Species Database (GISD) 2025. Species profile *Senecio inaequidens*. Available from:

<https://www.iucngisd.org/gisd/species.php?sc=1458> [Accessed 17 December 2025]

- Bornkamm, Reinhard., 2002. Further spread of *Senecio inaequidens* DC. in Berlin and southwesterly adjacent parts of Brandenburg in 1998-2001. Verhandlungen des Botanischen Vereins von Berlin und Brandenburg. 135 2002. 25-40.
- Bornkamm, Reinhard., 2002. On the phytosociological affiliations of an invasive species *Senecio inaequidens* in Berlin. Preslia (Prague). 74(4). December 2002. 395-407.
- Bornkamm, Reinhard., 2006. Causes and limits of the expansion of *Senecio inaequidens* DC. in Central Europe - illustrated taking the example of Berlin/Brandenburg. Verhandlungen des Botanischen Vereins von Berlin und Brandenburg. 139 2006. 9-26.
- Bornkamm, Reinhard; Prasse, Ruediger., 1999. The first years of the invasion of *Senecio inaequidens* DC. in Berlin and adjacent Southwestern Brandenburg. Verhandlungen des Botanischen Vereins von Berlin und Brandenburg. 132 1999. 131-139.
- Bossdorf, Oliver; Lipowsky, Annett; Prati, Daniel. 2008. Selection of preadapted populations allowed *Senecio inaequidens* to invade Central Europe. Diversity & Distributions. 14(4). JUL 2008. 676-685.
- Brandes, Dietmar., 1999. *Senecio inaequidens* at the Monte Baldo. Abhandlungen Naturwissenschaftlichen Verein zu Bremen. 44(2-3). 1999. 245-256.
- Brennenstuhl, Guenter., 1995. *Senecio inaequidens* DC. near Salzwedel: New for Saxony-Anhalt. Floristische Rundbriefe. 29(2). 1995. 181-183.
- Brennenstuhl, Guenter., 2002. Further records of *Senecio inaequidens* DC. in the northwestern part of the Altmark region, Germany. Floristische Rundbriefe. 35(1-2). April, 2002. 45-46.
- Buescher, D., 1989. The Further Spread of *Senecio inaequidens* in Westphalia West Germany. Floristische Rundbriefe. 22(2). 1989. 95-100.
- Buescher, Dietrich; Loos, Goetz Heinrich., 1993. New observations on the distribution of *Senecio inaequidens* DC. in Westphalia. Floristische Rundbriefe. 27(1). 1993. 41-49.
- Burton, Rodney M., 1996. Botanical records for 1995, with a note on computerization. London Naturalist. 0(75). 1996. 137-146.
- Cano, L.; Escarre, J.; Sans, F. X., 2007. Factors affecting the invasion success of *Senecio inaequidens* and *S. pterophorus* in Mediterranean plant communities. Journal of Vegetation Science. 18(2). APR 2007. 281-288.
- Colling, Guy; Krippeel, Yves., 2001. Floristic notes. Observations made in Luxembourg (1998-1999). Bulletin de la Societe des Naturalistes Luxembourgeois.(101). 20 Janvier, 2001. 33-47.
- Colling, Guy; Reichling, Leopold., 1996. Floristic notes 1994-1995. Bulletin de la Societe des Naturalistes Luxembourgeois. 0(97). 1996. 25-38.
- Conforti, Filomena; Loizzo, Monica R; Statti, Giancarlo A; Houghton, Peter J.; Menichini, Francesco., 2006. Biological properties of different extracts of two *Senecio* species. International Journal of Food Sciences & Nutrition. 57(1-2). FEB-MAR 2006. 1-8.
- Dassonville, Nicolas; Vanderhoeven, Sonia; Vanparys, Valerie; Hayez, Mathieu; Gruber, Wolf ; Meerts, Pierre., 2008. Impacts of alien invasive plants on soil nutrients are correlated with initial site conditions in NW Europe. Oecologia (Berlin). 157(1). AUG 2008. 131-140.
- D Hose, R; De Langhe J E., 1989. New Localities of Rare Plants in Belgium XVII. Bulletin de la Societe Royale de Botanique de Belgique. 122(1). 1989. 31-36.
- Dimande, A. F. P.; Botha, C. J.; Prozesky, L.; Bekker, L.; Rosemann, G. M.; Labuschagne, L.; Retief, E., 2007. The toxicity of *Senecio inaequidens* DC. Journal of the South African Veterinary Association. 78(3). SEP 2007. 121-129.
- [Dimande, A. F. P., Botha, C. J., Prozesky, L., Bekker, L., Rosemann, G. M., Labuschagne, L. & Retief, E 2007, The toxicity of *Senecio inaequidens* DC., Journal of the South African Veterinary Association, vol. 78, no. 3, pp. 121-129.](#)
- Summary:** Available from: <https://www.up.ac.za/dspace/handle/2263/5114> [Accessed 30 January 2003]
- Ernst, W. H. O. 1998. Invasion, dispersal and ecology of the South African neophyte *Senecio inaequidens* in The Netherlands: From wool alien to railway and road alien. Acta Botanica Neerlandica. 47(1). March, 1998. 131-151.
- Garcia-Serrana, H.; Sans, F. X.; Escarre, J., 2007. Interspecific competition between alien and native congeneric species. Acta Oecologica. 31(1). JAN-FEB 2007. 69-78.
- Garcia-Serrano, Hector; Escarre, Josep; Cano, Lidia; Sans, F. Xavier., 2008. Comparing the effect of habitat on the magnitude of inbreeding depression in the Mediterranean native *Senecio malacitanus* and the alien *S. inaequidens*: consequences for invasive ability. Botany-Botanique. 86(1). JAN 2008. 63-75.
- Garcia-Serrano, Hector; Escarre, Josep; Garnier, Eric; Sans, F. Xavier., 2005. A comparative growth analysis between alien invader and native *Senecio* species with distinct distribution ranges. Ecoscience. 12(1). 05. 35-43.
- Garcia-Serrano, Hector; Escarre, Josep; Sans, F. Xavier., 2004. Factors that limit the emergence and establishment of the related aliens *Senecio inaequidens* and *Senecio pterophorus* and the native *Senecio malacitanus* in Mediterranean climate. Canadian Journal of Botany. 82(9). September 2004. 1346-1355
- Gardinali, R; Sciandra, A 1977. A New Station of *Senecio inaequidens* New Record in Northern Italy. Informatore Botanico Italiano. 9(3). 1977. 290.
- [Global Compendium of Weeds \(GCW\), 2007. *Senecio inaequidens* \(Asteraceae\)](#)
- Summary:** Available from: http://www.hear.org/gcw/species/senecio_inaequidens/ [Accessed 30 January 2003]
- Griese, Detlef., 1996. On the spreading of *Senecio inaequidens* DC. along motorways in northeastern Germany. Braunschweiger Naturkundliche Schriften. 5(1). 1996. 193-204.
- Jung, Ming-Jer; Yang, Sheng-Zehn; Kuoh, Chang-Sheng., 2005. Notes on two newly naturalized plants in Taiwan. Taiwaniana. 50(3). SEP 2005. 191-199.
- Kehren, Wolfgang., 1995. Distribution tendencies of *Senecio inaequidens* DC. in the urban area of Cologne-Deutz (MTB 5007 Cologne). Floristische Rundbriefe. 29(2). 1995. 177-180.
- Koenig, Peter., 1995. *Senecio inaequidens* first record for Berlin. Verhandlungen des Botanischen Vereins von Berlin und Brandenburg. 128(2). 1995. 159-163
- Kuhbier, Heinrich., 1996. 100 years *Senecio inaequidens* in Bremen. Abhandlungen Naturwissenschaftlichen Verein zu Bremen. 43(2). 1996. 531-536.
- Kuhbier, Heinrich., 2006. *Senecio inaequidens* now on the island of Helgoland. Abhandlungen Naturwissenschaftlichen Verein zu Bremen. 46(1). 2006. 79-80.
- Kuhbier, Heinrich; Weber, Heinrich E., 2003. *Senecio inaequidens* DC. as an element of the natural dune vegetation on the East Friesian islands. Tuexenia.(23). 2003. 367-371

- Lafuma, L.; Balkwill, K.; Imbert, E.; Verlaque, R.; Maurice, S., 2003. Ploidy level and origin of the European invasive weed *Senecio inaequidens* (Asteraceae). *Plant Systematics & Evolution*. 243(1-2). December 2003. 59-72.
- Lafuma, Lucile and Sandrine Maurice., 2007. Increase in mate availability without loss of self-incompatibility in the invasive species *Senecio inaequidens* (Asteraceae). *Oikos* 116: 201-208, 2007. doi: 10.1111/j.2006.0030-1299.15220.x,
- López-García, M.C. and J. Maillet, 2005. Biological characteristics of an invasive south African species. *Biological Invasions* 7 (2): 181-194.
- MacPherson, P., 1997. *Senecio inaequidens* in a Glasgow Dock. *Glasgow Naturalist*. 23(2). 1997. 54-55.
- Mazomeit, J., 1991. *Senecio inaequidens* New record DC Now found Also in Baden Saarland and the Palatinate. *Floristische Rundbriefe*. 25(1). 1991. 37-39.
- Medina A., Marnotte P., Maillet J., 2003. In : 05/06-09. Proceedings of the 7th Symposium on weed control in sustainable agriculture in the Mediterranean area, Adana, Turkey, 2003. s.l. : s.n., p. 137-138. Symposium on Weed Control in Sustainable Agriculture in the Mediterranean Area. 7, 2003-05-06/2003-05-09, Adana, Turquie
- Menghini A; Mincigrucci., G., 1976. A New Station of *Senecio inaequidens* New Record in Central Italy. *Informatore Botanico Italiano*. 8(2). 1976. 192-196.
- Moll W., 1989. The Current Distribution of *Senecio inaequidens* in Northern Rhineland West Germany. *Floristische Rundbriefe*. 22(2). 1989. 101-103.
- Monty, Arnaud; Stainier, Charles; Lebeau, Frederic; Pieret, Nora; Mahy, Gregory., 2008. Seed rain pattern of the invasive weed *Senecio inaequidens* (Asteraceae). *Belgian Journal of Botany*. 141(1). 2008. 51-63.
- Often, Anders., 1997. *Senecio inaequidens* DC. and *Solidago rugosa* Mill. found as ruderals in Oslo, Norway. *Blyttia*. 55(3). 1997. 141-144.
- Pace, Loretta and Fernando Tamarro., 2006. The Main Invasive Alien Plants in the Protected Areas in Central Italy (Abruzzo) Invasive alien organisms. Book Series Advances in Global Change Research Volume 9 Global Change and Protected Areas Springer Netherlands DOI 10.1007/0-306-48051-4 Copyright 2003 ISBN 978-0-7923-6918-9 (Print) 978-0-306-48051-5 (Online) Section 4 DOI 10.1007/0-306-48051-4 46 Pages 495-504
- Prati, D., O. Bossdorf: Native and introduced populations of *Senecio inaequidens* DC: A comparison of native and introduced populations of the South African Ragwort *Senecio inaequidens* DC. in the field. 2. Symposium der A. F.W. Schimper-Stiftung
- Rzedowski, J., Vibrans, H. & Calderon de Rzedowski, G. 2003. *Senecio inaequidens* D.C. (Compositae, Senecioneae), a harmful weed introduced into Mexico. *Acta Botanica Mexicana*, 63, 83-96 (abst.).
- Scherber, Christoph, Crawley, Michael J. and Porembski, Stefan. 2003. The effects of herbivory and competition on the invasive alien plant *Senecio inaequidens* (Asteraceae). *Diversity & Distributions* 9 (6). November 2003. 415-426.
- Schmitz, Gregor; Werner, Dietrich Johannes., 2001. The importance of the alien plant *Senecio inaequidens* DC. (Asteraceae) for phytophagous insects. *Zeitschrift fuer Oekologie und Naturschutz*. 9(3). February, 2001. 153-160.
- Torok, K.; Z. Botta-Dukat, I. Dancza, I. Németh, J. Kiss, B. Mihály & D. Magyar., 2003. Invasion gateways and corridors in the Carpathian Basin: biological invasions in Hungary. *Biological Invasions* 5: 349-356, 2003.
- USDA ARS. 2008. *Senecio inaequidens* DC. National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.
- Summary:** Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Senecio%20inaequidens [Accessed 30 January 2003]
- Werner D J; Rockenbach, T; Hoelscher M-L., 1991. Origin, Distribution Phytophysiology and Ecology of *Senecio inaequidens* With Special Attention to the Region Around Cologne and Aachen. *Tuexenia*.(11). 1991. 73-108.