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# *Arum italicum* subsp. *albispatum* (Steven ex Ledeb.) Prime *Arum maculatum* L. Araceae

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## Synonyms

*Arum italicum* subsp. *albispatum* (Steven ex Ledeb.) Prime: *Arum albispatum* Steven ex Ledeb.; *Arum orientale* subsp. *albispatum* (Steven ex Ledeb.) K. Richt.; *Arum orientale* subsp. *albispatum* (Steven ex Ledeb.) Nyman; *Arum orientale* var. *albispatum* (Steven ex Ledeb.) Engl.

*Arum maculatum* L.: *Arum maculatum* fo. *spathulatum* Terpó; *Arum maculatum* fo. *tetrellii* (Corb.) Terpó; *Arum maculatum* fo. *karpatii* Terpó; *Arum orientale* (Engl.) R.R. Mill; *Arum orientale* subsp. *amoenum* (Engl.) R.R. Mill; *Arum*

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*pyrenaicum* Dufour; *Arum trapezuntinum* Schott ex Engl.; *Arum vulgare* Lam.; *Arum zelebori* Schott

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## Local Names

**Allium italicum:** Georgian: ნიუკა (niuk'a), დაჭრილა (dach'vila), ქალაკოდა (kalak'oda); ქალაკოდა (Qalakoda).

**Allium maculatum:** Svan: ქალაკოდა (qalakoda); Russian: Аройник (Aroinik); Azeri: дана-аягы (dana-ayagy); Armenian: კոնგ (kong) (Grossheim 1952; Ketskhoveli et al. 1971–2011; Makashvili 1991; Sokolov 1994).

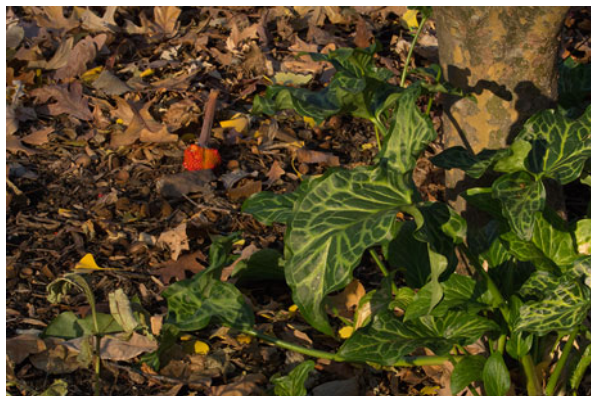
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## Botany and Ecology

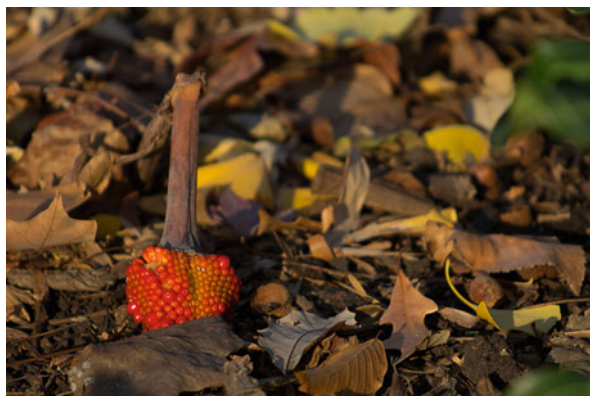
**Arum italicum:** Perennial; tuber ovoid to elongate; leaves very large, to 70 cm long, the blade to 23 cm long, with short obtuse lateral leaflets, the petioles very long (twice as long as the blades), forming a short broad sheath at base; scape half as long as the leaf petiole; spathe with an ovate to oblong acuminate limb, very large, white, greenish on the back; spadix half as long as the spathe; summit of spadix cylindrical, yellow, shorter than the stalk. Flowering April–May. Ural, Caucasus, in shady *Fagus* and *Carpinus* forests, thickets, shrubland, on grassy slopes, up to the mid-mountain belt (Komarov and Shishkin 1935; Figs. 1 and 2).

**Arum maculatum:** Perennial; tuber globular-flattened; leaf blade broadly hastate-cordate, about half as long to as long as the petiole, 7–7.5 cm in length, the lateral leaflets 2.4–4.4 cm, the blade often broader than long; spadix longer than long, dark brownish-purple, greenish-white at base; summit of spadix cylindrical (to 2 cm long), dark reddish-purple, shorter than to equaling its slender stalk. Flowering April–May. Ural, Caucasus, in shady *Fagus* and *Carpinus* forests (Komarov and Shishkin 1935; Figs. 3 and 4).

**Fig. 1** *Arum* sp. (Araceae), Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



**Fig. 2** *Arum* sp. (Araceae), Georgia. (Photo R.W: Bussmann & N.Y. Paniagua-Zambrana)



**Fig. 3** *Arum* sp. (Araceae), Georgia. (Photo R.W: Bussmann & N.Y. Paniagua-Zambrana)



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## Phytochemistry

Carbohydrates (glucose, fructose, raffinose, sucrose, mannose, rhamnose), alkaloids, vitamins (C), saponins, cyanogenic (trilochinine), phenolcarboxylic acids (coffee), flavonoids (apyrenene, luteolin, glucoside, quercitrin, rutin, orientin, iso-oriene, vitexin, isovitexin, saponarin) (Sokolov 1994).

**Fig. 4** *Arum* sp. (Araceae), Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



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### Local Medicinal Uses

In the Ural, *Arum* is externally for eczema, sunburn erythema, herpes, and bleeding gums and insect bites. The decoction is ingested to treat gastritis, bronchitis, heartburn, liver diseases, gout, and hemorrhoids (Sokolov 1994).

***Arum maculatum*:** In Georgia, the leaf extract is used for cancer treatments (Bussmann et al. 2014, 2016a, b, 2017).

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### Local Food Uses

In the Caucasus, the young leaves are used for herb stew, soups, and salads and the tubers are dried and ground as flour. The plants are toxic and cannot be eaten without processing. Fresh tuber-like rhizomes of Araceae are very poisonous, but boiling and drying remove the poison, so that they can be eaten and ground into flour. In Northern Armenia, young leaves of *A. orientale* are dried and shortly boiled; broth is removed to remove bitter taste, and leaves are further boiled to make souse of soup. The product is highly valued by population as a delicacy (Grossheim 1952; Sokolov 1994).

In the Tianeti District, ghjimi დომი *Chaerophyllum bulbosum* L., diq'i დოცი *Heracleum* ssp., khozo ხოზო *Chaerophyllum aureum* L., kalta-k'ovza ქალთა-კოვზა *Arum orientale* M. Bieb., and *Arum albispatham* Steven ex Ledeb. stems are pickled.

In Kartli kalak'oda ქლაკოდა *Arum orientale* M. Bieb., shavmkhala შავმხალა *Amaranthus retroflexus* L., kharik'bila ხარიკბილა/khach'mach'ich'a ხაჭმაჭიჭა/odelia-khali ოდელია-ხალი *Capsella bursa-pastoris* (L.) Medik., shalgi შალგი *Brassica campestris* L., ghrinch'ola გრინჭოლა *Anthriscus nemorosa* (M. Bieb.) Spreng., kalak'oda ქლაკოდა *Arum orientale* M. Bieb., and ghoriskona-khali გორისკონა-ხალი *Sonchus* ssp. are used for pkhali (Javakhishvili 1986).

A winter dish is “kalak'oda naq'un” (*Arum albispatham* Steven ex Ledeb.) “ქლაკოდა ნაყუნ.” This needs to be dried because it is not edible when raw. It is braided while raw and hung to dry and then prepared as follows: put in a boiling water. When ready, barley flour “rop” (“როფ”) is added, meld with “zhishkhk” (“ჯიშხკ”), and seasoned with coriander, mint, and salt (Javakhishvili 1986).

In Racha young shoots of kalak'oda ქლაკოდა *Arum orientale* M. Bieb. (in Racha and Imereti the local name is niuk'a) are used as food to cook pkhali (Dvalidze 2014; Shengelia 1983).

In Racha tiorshi თიორში, dilkhami დილხამი *Arctium lappa* L., mek'endzala მეკენძალა *Aruncus vulgaris* Raf., kalak'oda ქლაკოდა *Arum orientale* M. Bieb., and *Humulus lupulus* L. and many others are kept for winter woven in double braids and hung from a pillar to pillar, long as the song sung by women during the kalak'oda ქლაკოდა (*Arum orientale* collection party) (Pruidze 1986).

People of western Georgia widely use dried niuk'a and kalak'oda *Arum orientale* as a good pkhali plant (Kopaliani 2013).

**Arum italicum:** Leaves used in pkhali (herb pie) (Bussmann et al. 2014, 2016a, b, 2017, 2018).

**Arum maculatum:** Leaves and young shoots used in pkhali (herb pie) (Bussmann et al. 2014, 2016a, b, 2017, 2018).

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## Local Handicraft and Other Uses

The pounded plant material is used as bleach for laundry. Planted as ornamentals (Sokolov 1994).

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