SUPPLEMENTARY MATERIAL
to the article Yu.V. Fotev, A.M. Artemyeva, O.A. Zvereva
"Genetic resources of vegetable crops: from breeding non-traditional crops to functional food"

Promising species of vegetable crops and biological traits limiting the scale of production in Russian Federation

Crop	Number of cultivars in the State Register in 2020	Basic biochemical value	Biological traits limiting the scale of production in Russia					Links
			Response to the photo-period	Heat demand	Long growing season	Commodity/ product organoleptic quality	Susceptibility to diseases/ pests	
Kale (Collard greens) *Brassica oleracea* ssp. *oleracea* L.	5	Glucosinolates, ascorbic acid, B_1, B_2, PP, chlorophylls, carotenoids, flavonoids, K, Ca	–	–	–	–	–	Manikandan et al., 2015
Chinese broccoli *B. oleraceae* var. *alboglabra* (L.H. Bailey) Musil.	0	Glucosinolates, ascorbic acid, carotenoids, K, Ca, Mg	–	–	–	–	–	Fotev et al., 2018; Chang et al., 2019
Pakchoi *Brassica rapa* ssp. *chinensis* (L.) Hanelt	19	Glucosinolates, ascorbic acid, B_1, B_2, PP, folic acid, chlorophylls, carotenoids, flavonoids, K, Ca, P, Fe	±	–	–	–	–	Artemieva, Solovieva, 2018
Chinese cabbage *B. rapa* ssp. *pekinensis* (Lour.) Hanelt	61	Glucosinolates, ascorbic acid, carotenoids, vitamin U	±	–	–	–	±	Artemieva, Solovieva, 2018
Chinese flat cabbage or broad beaked mustard *B. rapa* ssp. *narinosa* (L.H. Bailey) Hanelt	0	Glucosinolates, ascorbic acid, chlorophylls, carotenoids	–	–	–	–	–	Artemieva, Solovieva, 2018
Flat cabbage or tatsoi, (rosette pak choi) *B. rapa* var. *rosularis* M. Tsen & S.H. Lee	0	Glucosinolates, ascorbic acid, B_1, B_2, PP, folic acid, chlorophylls, carotenoids, flavonoids, incl. anthocyanins, K, Ca, P, Fe	+	–	–	–	–	Artemieva, Solovieva, 2018
Purple stem mustard (wutacai) *B. rapa* var. *purpuraria* (L.H. Bailey) Kitam.	0	Glucosinolates, ascorbic acid, carotenoids, anthocyanins	–	–	–	–	–	Artemieva, Solovieva, 2018
Mizuna or Japanese mustard greens *B. rapa* ssp. *nipposinica* (L.H. Bailey) Hanelt	5	Glucosinolates, ascorbic acid, B_1, B_2, PP, folic acid, chlorophylls, carotenoids, flavonoids, incl. anthocyanins, K, Ca, P, Fe	–	–	–	–	–	Artemieva, Solovieva, 2018
Leafy turnip *B. rapa* ssp. *rapa* Hook.	4	Glucosinolates, ascorbic acid, chlorophylls, carotenoids, flavonoids, incl. anthocyanins, K, Ca, P, Fe	–	–	–	–	–	Artemieva, Solovieva, 2018
Leaf mustard or Indian mustard *B. juncea* Czern.	21	Glucosinolates, ascorbic acid, chlorophylls, carotenoids, flavonoids, incl. anthocyanins, K, Ca, P	–	–	–	–	–	There are valuable stem and root forms
Spoonwort *Cochlearia officinalis* ssp. *arctica* (Schlecht.) Hultén	0	Ascorbic acid	–	–	–	–	–	Ivanova et al., 2016

Supplementary Material (end)

Crop	Number of cultivars in the State Register in 2020	Basic biochemical value	Biological traits limiting the scale of production in Russia					Links
			Response to the photo-period	Heat demand	Long growing season	Commodity/ product organoleptic quality	Susceptibility to diseases/ pests	
Cress *Lepidium sativum* L.	17	Carotene, ascorbic acid	–	–	–	–	–	Solovieva et al., 2013
Common chicory *Cichorium intybus* L. var. *foliosum* Hegi	10	Saponins, flavonoids, tannins, Mg, Zn	–	–	–	–	–	Abbas et al., 2015
Amaranth, species of the genus *Amaranthus* L.: *A. dubius* Mart. ex Thell., *A. tricolor* L., *A. caudatus* L., *A. cruentus* L., *A. lividus* L., *A. hypochondriacus* L.	6	Squalene, protein, ascorbic acid, vitamin E, carotenoids, Ca	–	±	–	–	–	Salvador et al., 2012; Sokolova et al., 2021
Pepino *Solanum muricatum* Aiton	2	Chlorogenic acid	+	+	+	–	–	Ochoa, Ellis, 2004; Yamasaki et al., 2020
Naranjilla *Solanum quitoense* Lam.	1	Carotenoids, chlorogenic acid	+	+	+	+	+	Gancel et al., 2008
Physalis (*Physalis* L.) *Ph. ixocarpa* Brot., *Ph. pubescens* L., *Ph. peruviana* L., *Ph. philadelphica* Lam.	13	Pectin, fizalin	±	±	±	±	–	Kononkov et al., 2013; Naumova et al., 2019
Bitter melon *Momordica charantia* L.	5	Carotenoids, momorharins, phytosterols, terpenoids, phenolic compounds, flavonoids	?	+	±	±	±	Oliveira et al., 2018; Fotev et al., 2019
Wax gourd *Benincasa hispida* (Thunb.) Cogn.	2	Triterpenes. sterols, Mn, Fe, Co, Cu	?	+	±	±	–	Biradar et al., 2016
Kiwano *Cucumis metuliferus* E. Mey. ex Naudin)	1	Flavonoids, cucurbitacins in small amounts, K, Mg, Zn, Cu	?	+	±	+	–	Lim, 2012; Anyanwu et al., 2014, 2016; Ani et al., 2020
Asparagus vigna *Vigna unguiculata* (L.) Walp.	25	Protein, ascorbic acid, polyphenols, chlorogenic acid, Ca, Mg, Fe, Mo	±	+	±	±	+	Fotev, Belousova, 2013; Vishnyakova et al., 2019
Houttuynia or fish mint *Houttuynia cordata* Thunb.	0	Ascorbic acid, flavonoids, pyridine alkaloids, sterols, Co, Cu, Fe, Mn, Zn	?	?	+	±	–	Fu et al., 2013; Fotev et al., 2019

Note. "–" – an absence of a biological trait limiting the scaling of production in the Russian Federation; "+" – the presence of such trait; "±" – some forms differ in trait; "?" – additional research of intraspecific diversity is required