



Factors of semantic motivation of scientific plant names

Olena Balalaieva*

PhD in Pedagogy, Associate Professor

National University of Life and Environmental Sciences of Ukraine

03041, 15 Heroyiv Oborony Str., Kyiv, Ukraine

<https://orcid.org/0000-0002-2675-5554>

Abstract. Scientific plant names are a valuable lexical layer for studying categorisation as a process of verbalised ordering of knowledge of the environment, specific to each variant of the scientific and language picture of the world. The aim of the paper was to analyse the factors determining the semantic motivation of scientific names of weeds in Latin and Ukrainian. The study used etymological and semantic analysis of phytonyms, comparative method and generaliation. The research material was 100 binomial plant names, obtained as a result of continuous sampling from the guide of weeds in Ukraine. The paper investigated productive patterns of plant scientific names' formation in the Latin and Ukrainian languages, examined the main motives for plant naming in both languages. This study showed that the scientific plant names of in both languages are motivated by a combination of several common aspects including appearance, properties, place of occurrence, use and other fixed in the generic name and specific epithet. The findings confirmed the conclusions of modern research that the mechanism of nomination is based on the semantic motivation of phytonyms, determined by the choice of the motivator from the zone of information predominantly about the appearance (shape, colour, size, similarity of plants or their parts) and properties (taste, smell, tactile sensation, positive and negative properties). The results can be used in the training of specialists in the field of knowledge "Agrarian Sciences and Food"

Keywords: naming of plants; motives for naming; phytonyms; generic name; specific epithet; etymology; Latin; Ukrainian

Introduction

In modern linguistics, the study of phytonyms is a highly complex and challenging area of research requiring a multi-pronged approach that integrates different types of knowledge.

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*Corresponding author



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The relevance of the research is determined by the fact, that the botanical nomenclature is of the utmost importance in studying categorisation and understanding the relationship between humans and the environment, which are one of the most topical issues of modern scientific thought.

Scholars emphasised that plant names have twofold value: primarily a practical one, categorising objects of the plant kingdom, but also theoretical – phytonyms are valuable material for scientific research, since they represent a real cultural heritage (Drăgulescu, 2024). Plant names encode a significant amount of information on the cultural system that has generated them. Also analysis of plant names, according to M. Bagli (2021) “provides insights into the psychological processes and linguistic strategies used to encode nature into language”; they are not arbitrary, their etymologies largely depend on extra-linguistic factors.

Contemporary research such as M. Boháčová (2022) investigated plant names as a scientific problem in different aspects: cross-linguistic and polyconfrontative, comparing plant names in different and often unrelated languages; cognitive and linguocultural, focused on this stratum of vocabulary in the light of human cognitive activity and linguistic picture of the world; semantic and onomasiological, dealt with the motivation of plant names; multidisciplinary approach, etc. Although the study of phytonyms has a solid tradition in scientific research, some challenges tied to uncovering the mechanisms behind their formation remain insufficiently addressed.

In particular, scientists A. Villalva *et al.* (2019) noted that uncovering similarities and divergences from diachronic and synchronic observations on plant names in different languages “has proven to be a useful strategy to consolidate findings and information gaps”. Among various scientific challenges, the issue of identifying the factors that influence the selection of motivating traits in the nominative

process stands out as a primary focus for contemporary research in this area, reflecting their complex nature and significant diversity.

First, Latin and Ukrainian are distantly related and hence it was of scientific interest to compare the mechanisms of motivation of plant names in these languages. Second, a fairly large number of studies such as J. Waniakowa (2021) and M.T. Caceres-Lorenzo & M. Salas-Pascual (2022) was devoted to common, folk and dialect names of plants, so author concentrated on scientific names. Third, the attention of the researchers was mainly directed to the study of the names of plants having positive properties in human practice – medicinal plants (Panasenko, 2021), crop plants (Peruzzi, 2020), ornamental plants, etc. Much research has been also devoted to the names of trees (Blažek, 2018).

Hence, this paper focused on the names of weed plants. The novelty of this research is caused by the fact that this group of phytonyms has not been the subject of scientific research. The purpose of the study was to investigate the semantic motivation of scientific names of weeds, as well as the main factors influencing plant naming in Latin and Ukrainian. To achieve the goal, it was necessary to solve the following tasks:

- 1) to analyse Latin and Ukrainian names of weed plants etymologically;
- 2) to investigate productive patterns of plant scientific name formation in Latin and Ukrainian;
- 3) to examine the main motives for plant naming in both languages.

Materials and Methods

The study used etymological and semantic analysis of phytonyms, comparative method and generalisation. The research material was 100 binomial plant names, obtained as a result of continuous sampling from the guide of weeds (Kosolap *et al.*, 2022). In line with the research tasks, at the first stage an etymological analysis of weed names was carried out. The

lexicographic base of the study was several etymological dictionaries. To study the etymology of Latin plant names, the following dictionaries were used: "Etymological dictionary of Latin and the other Italic languages" (Vaan, 2018), "Etymological dictionary of botanical plant names" (Genaust, 2017), "The names of plants" (Gledhill, 2008). To etymologise the Ukrainian plant names "Etymological dictionary of the Ukrainian language" by O.S. Melnychuk *et al.* (1982) was used. To clarify some aspects of the origin of Ukrainian phytonyms the scientific monograph "History of Ukrainian botanical vocabulary (XIX – beg. XX)" by I.V. Sabadosh (2014) was also applied.

In this study, the methodological framework for determining motivational factors was based on the typology of factors influencing the semantic motivations for plant naming in various European languages, developed by P. Dębowski & J. Waniakowa (2019). The main factors conditioning the semantic motivation of plant names and general motivational mechanisms adopted in this study were: the appearance of plants; the properties of plants; the place of occurrence of plants; the usage of plants; other motivations.

Since scientific plant names are binominal, being a combination of a generic name and a specific epithet, at the second stage, productive patterns of construction of species names of weeds in Latin and Ukrainian were found and compared according to the selected motivational factors determining the nomination of each component as well as their combinations. The generic name was taken as the principle component determining the reference of scientific plant names to a particular pattern. At the third stage, main motives for plant naming in both languages were quantitatively analysed. This made it possible to determine the percentage ratio of factors determining the semantic motivation of generic names and specific epithets in scientific names of weeds and to compare the data in the Latin and Ukrainian

languages. The generalisation was used to formulate conclusion.

Results and Discussion

The motivation of phytonyms is viewed as a representation of the motives for naming. These motives encompass a range of factors that operate within the nominative context, compelling the individual to make particular choices. Each motivating factor combines many detailed aspects. The motivating factor *Appearance of plants* consists involves such features: colour, shape, size of plant or its parts (flowers, leaves, root), similarity to other plants, etc. The factor *Properties of plant* assumes various motives for plant naming related to their physical and functional properties: smell, taste, tactile sensation, vegetative properties, blossoming and harvest time, healing, positive and negative properties, etc. (Dębowski & Waniakowa, 2019). The *Place of occurrence of plants* can refer to their geographic distribution, place of origin or growth, habitat. *Usage of plants* implies applying them in the household, using for food or fodder.

In most cases, scientific plant names combine several motives in the generic name and the specific epithet.

LAT/UKR: Appearance of plants + Appearance / Place of occurrence of plants / Common epithet

a) Appearance of plants + Appearance of plants

Rhinanthus major – Дзвінець великий (European yellow rattle)

Lat. *rhinanthus* is derived from two Greek roots: *ρίς, ρίνος* (*rhis, rhinos*) "nose" and *άνθος* (*anthos*) "flower": the name is motivated by the shape of the corolla with elongated upper lip (Gledhill, 2008). The specific epithet *major* is comparative degree of *magnus, a, um* "great, large" – the plant can reach a height of 80 cm.

Ukr. дзвінець < Proto-Slavic *zvоньсь, derived of *zvонъ "bell": the name is motivated by the shape of the plant's flower (Melnychuk *et al.*, 1982).

Stellaria media – Зірочник середній (Common chickweed)

Lat. *stellaria* is derived from the word *stella*, *ae f* “star” due to the shape of its flowers (Gledchill, 2008). The specific epithet *medius*, *a, um* “mid-sized, intermediate” indicates the size of the flower.

Ukr. зірочник < зірка, зірочка “star”; the name is also motivated by the flower shape (Melnychuk *et al.*, 1982).

Chenopodium album – Лобода біла (Bacon-weed)

Lat. *chenopodium* is compounded by two Greek roots: *χην* (*khen*) “goose” + *πούς* (*pous*) “foot, paw”: the leaves of some species of the plant resemble a goose’s foot (Gledchill, 2008). The specific epithet *albus*, *a, um* “white” is used because the leaves of this species are mealy in appearance, with a whitish coat on the underside.

Ukr. лобода is motivated by the same feature and comes from **elboda*, related to Lat. *albus* “white”, Greek *ἀλφός* “white rash”, Indo-European **albho* “white” (Melnychuk *et al.*, 1982).

Melandrium album – Куколиця біла (White campion).

Lat. *melandrium* is borrowed from Greek. Some researchers derive it from Greek *melandryon* “black core of oak” < *melas* “black” + *drys* “oak” (Genaust, 2017), others – from *melas* “black” + *andros* “anther” (Gledchill, 2008).

Ukr. куколиця is a derivative of *кукіль*, the name is transferred from another plant *Agrostemma githago*; perhaps is motivated by the similarity of plants. Plants named *кукіль* resemble it by the shape of the flowers or cups (the *кукіль* comes from Proto-Slavic **kolkolъ*, **kolkolъ* “bell”: the shape of the flower resembles a bell) (Melnychuk *et al.*, 1982).

Ipomoea hederacea – Кручені паничі плющові (Ivy-leaved morning glory).

Lat. *ipomoea* is borrowed from the Greek, where it was compounded from two roots: *ιπς*, *ιπος* (*ips*) “worm” + *ῥμοιος* (*hómoios*) “similar, resembling”: plant has twining stems resembling worms (Gledchill, 2008). The specific epithet

hederaceus, *a, um* “ivy-like, resembling hederaceae” points out the similarity with leaves of ivy.

Кручені паничі is a specifically Ukrainian figurative metaphorical name due to the inflorescence of the plant (Sabadosh, 2014).

Bifora radians – Біфора променюста (Wild bishop)

Lat. *bifora* came from the adj. *biforus* “bi-folded, double” (about doors, window) < *bi-* “two-” + *foris* “door”: plant has globular, didymous fruits (Genaust, 2017). The specific epithet *radians* derived from Latin *radius*, *i m* “ray”, because the inflorescence is an umbel with 5-7 rays. Ukr. біфора is borrowed from Latin.

b) LAT/UKR: Appearance of plants + Place of occurrence of plants

Equisetum arvense – Хвощ польовий (Horse-tail)

Lat. *equisetum* is formed by compounding two Latin roots: *equus* “horse” + *saeta* “bristle”: plant’s twigs resemble a horse’s tail (Gledchill, 2008). This motivational factor determined plant’s name in many other languages, in particular in Ukrainian: the word *хвощ* comes from the Proto-Slavic **xvostjъ* “tail” (perhaps also “broom”) (Melnychuk *et al.*, 1982). The specific epithet adj. *arvensis*, *e* “growing in or pertaining to cultivated fields” from *arvum*, *i n* “ploughed land, field” (Vaan, 2018) refers to the place where the plant grows.

Portulaca oleracea – Портулак городній (Common purslane)

Lat. *portulaca* is derived from *portula* “small door” < *porta*, *ae f* “door, gate” + diminutive suffix *-ula* because of the door-like opening of the seed capsule (Genaust, 2017). The species epithet *oleraceus*, *a, um* < *olus*, *oleris n* “vegetable” indicates the habitat: the plant grows as a weed in vegetable gardens and in grain crops. Ukr. портулак is borrowed from Latin.

Brachypodium sylvaticum – Куцоніжка лісова (False-brom)

Lat. *brachypodium* is derived from Greek *βραχύς* (*brachys*) “short” and *πόδιον* (*podion*) “a little foot”; plant’s name is motivated by a

short spikelet stalk (its pedicles 1-2 mm long) (Gledchill, 2008). The specific epithet *sylvaticus*, *a, um* “wild, growing in or pertaining to woods or forests” derived from *sylva, ae f* “forest, wood” indicates where the plant grows.

Ukr. *куцоніжка* is a calque from Latin: *ку-* “short” + *ніжка* “a little foot” (Melnychuk *et al.*, 1982).

Calamagrostis epigejos – *Куничник наземний* (*Wood small-reed*)

Lat. *calamagrostis* came from the Greek *καλαμάγρωστις*, derived from *κάλαμος* (*kalamos*) “reed” and *ἄγρωστις* (*agrostis*) “a kind of grass”; motive for naming is the similarity of these plants. The specific epithet *epigejos ἐπίγειος* “on the earth, earthly” derived from *ἐπί* (*epi*) “on, upon” and *γῆ* (*ge*) “earth” – unlike reeds, bush-grass grows on the ground.

Ukr. *куничник* is derived from *куниця* “panicle of reed”; it’s motivated by similarity of plants inflorescences (thick panicle) (Melnychuk *et al.*, 1982). I.V. Sabadosh (2014) also gave another version of the motivation, according to which the word is derived from *куниця* meaning “marten”: plant’s inflorescence resembles a marten’s tail.

c) LAT/UKR: *Appearance of plants + Common epithet*

It should be noted that among common specific epithets, Lat. *vulgaris, e* “common, usual, ordinary” and Ukr. *звичайний* is the most frequently used, which can be considered as a general characteristic of the plant since it does not indicate any specific features.

Echium vulgare – *Синяк звичайний* (*Viper’s bugloss*)

Lat. *echium* came from Greek *ἔχιον* (*ekhion*), derived from *ἔχιδνα* (*ékhis*) “snake, viper” with the diminutive suffix *-ιον* (*-ion*). Most researchers believe that the plant got its name because of the resemblance of the fruit or flower to the head of a snake (Genaust, 2017), besides, it was used in folk medicine for snake bites (Gledchill, 2008).

Ukr. *синяк* is motivated by colour of the flower: *синій* “blue”.

Cyclachaena xanthifolia – *Чорнощир звичайний* (*Giant sumpweed*)

Lat. *cyclachena* is formed by compounding two roots: *cycl-* “round” < Greek *κύκλος* (*kyklos*) “circle” + *achaenium* “achen”, referring the shape of the plant’s fruits. The specific epithet *xanthifolia* < *xanthium* “cocklebur” + *-folius, a, um* “-leafed” (*folium* “leaf”) was given due to the similarity of the plants’ leaves (Gledchill, 2008).

Ukr. *чорнощир* also consists of two roots: *чорно-* “black” (refers to the colour of the achenes) + *щир* < Proto-Slavic **ščirъ* (as in the word *щиреця*).

Erodium cicutarium – *Грабельки звичайні* (*Common stork’s-bill*)

Lat. *erodium* came from Greek *ἐροδιός* (*erōidiós*) “heron” due to the resemblance of the elongated fruits of the plant to the heron’s beak (Gledchill, 2008). The specific epithet *cicutarius, a, um* “hemlock-like” < *cicuta* “hemlock”: plant’s leaves resemble hemlock.

Ukr. name *грабельки* < Proto-Slavic **grab’lky* derived from *grabljě* “rake”; the plant could get its name due to the similarity of the stem to the rake handle and fruits with peduncles to the rake teeth (Melnychuk *et al.*, 1982).

Capsella bursa-pastoris – *Грицики звичайні* (*Shepherd’s purse*)

Both the generic name and the specific epithet characterise the shape of the fruits. The first name *capsella* is a diminutive to Latin *capsa* “box, case”, and the specific epithet consists of two Latin words: *bursa* “bag” and genitive form of *pastor* (*Gen. pastoris*) “shepherd” – triangular fruits of the plant resemble a shepherd’s purse.

There is no single point of view regarding the origin of the Ukrainian name of the plant. According to one version, *грицики* is a result of the modification of the name *гречка* “buckwheat” due to its convergence with the male name *Грицик*, perhaps under the influence of the form *гришка* “buckwheat”, which comes

from Moldovan *хришкэ* “idem” (Melnychuk *et al.*, 1982; Kosolap *et al.*, 2022). I.V. Sabadosh (2014) believes this point of view is unconvincing and considers, that the name is determined by the flowering time of this plant during the Christian holiday of St. Gregory.

Linaria vulgaris – льонок звичайний (Common toadflax)

Lat. *linaria* is derived from adj. *linarius*, *a, um* “flax-like, linen” < *linum*, *i n* “flax”: because of the similarity of the narrow-lanceolate leaves of plants.

The Ukrainian plant’s name is also motivated by the same factor – similarity of the plants’ leaves: льонок < льон “flax”.

LAT/UKR: Properties of plants + Properties / Appearance / Place of occurrence of plants / Common epithet

a) LAT/UKR: *Properties of plants + Properties of plants*

Carduus nutans – Будяк пониклий (Nodding thistle)

Lat. *carduus* is derived from *carrere* “to scratch”, related to Proto-Indo-European **kars-* “to scratch, scrape, rub” – the plant has sharp spines (Genaust, 2017). Cf.: Sanskrit कर्शति “scratches”, German *harsh* “hairy”, Old Slavic *krasta*, Lithuanian *karsiu* “to comb”. The specific epithet *nutans* “drooping, nodding” < *nuto*, *nutare* “droop, sway, swing” is given to the plant because the flower heads slop downwards.

Ukr. будяк < Proto-Slavic **bodakъ*, derived from **bodti* “to stab”; (form with *бы-* is obviously the result of deetymologisation) (Melnychuk *et al.*, 1982). The standard motivator for the negative assessment of touch in many Ukrainian folk names of plants is будяк “thistle”, given in explanatory dictionaries as a “thorny herbaceous plant-weed”. The stem of the noun будяк in the plant names, especially those that do not belong to the genus *Carduus* in botanical classification, is a motivator for a negative assessment of tactile sensations, since in the view of native speakers будяк “thistle” is associated with prickly properties (Usyk, 2017).

Urtica dioica – Крпива двудомна (Common nettle)

Lat. *urtica* is derived from verb *uro*, *urere* “to burn”, the plant’s leaves and stems are covered by many hairs, which produce a stinging sensation upon contact. The specific epithet *dioicus*, *a, um* comes from Greek *δίοικος*, meaning “of two houses” < *δίς* (*dís*) “twice” + *οἶκος* (*oîkos*) “house”, *urtica* has male and female reproductive organs (stamens and pistils) on separate plants (Gledhill, 2008).

Ukr. *крпива* < Proto-Slavic **kropiva* (*ko-priva*), derived from **kropiti*. There are two versions of motivation: the plant has previously been doused with boiling water before using as fodder for cattle (cf. Old Slavonic *oukropъ* ‘boiling water’, Ukr. *okríp*) or the connection with **kropiti* is motivated by property of nettle to sting, burn – as if by small splashes) (Melnychuk *et al.*, 1982).

Datura stramonium – Дурман звичайний (Thornapple)

Lat. *datura* is borrowed from Hindi धतुरा (*dhatūrā*) and Sanskrit *dhattūra* “drug”, related to Arabic *datora* < Persian *tatula*, derived from *tat* “to prick” – the plant has prickly fruits covered with thorns. The origin of the specific epithet *stramonium* is unclear. H. Genaust (2017) questioned the common version regarding the origin of the word from the Greek roots *σπέρχνο*s (*strychnon*) “nightshade” and *manikon* “madness”, although the consumption of the fruit causes delirious and excited states; some researchers associate it with Tatar *turman* “remedy for horses” (Gledhill, 2008).

That same word is also associated with origin of Ukr. дурман, which, according to one version, is considered to be borrowed from the Turkish languages: Tatar, Bashkir *turman* “remedy for horses”, *dermān* “medicine, drug” < Persian *dārman* “medicine, potion”; according to another – it derived from the stems *дурний* “stupid, fool”, *одуряти* “make foolish, befuddle” due to the poisonous properties of the plant (Melnychuk *et al.*, 1982). I.V. Sabadosh (2014)

believes that the name is motivated by the poisonous, unpleasant, dizzying smell of the plant. L. Usyk (2017) also leans towards this version: productive in Ukrainian phytonyms is a motivator, expressed by the stems of the words *дур*, *дурний* in the sense of “mad, insane” or “dizziness”. The motivation in the examples with this motivator can be related to several factors, one of which is the intense smell of the plant, which when inhaled for a long time causes unpleasant symptoms: dizziness, headache and nausea.

b) LAT/UKR: *Properties of plants + Appearance of plants*

Amaranthus albus – Щиріця біла (Common tumbleweed)

Lat. *amaranthus* came from Greek *ἀμάραντος* (*amarantos*) “unfading” (*a-* “negative prefix” + *μαραίνω* (*marainein*) “decay, die away, wither”) which was contaminated with the word *άνθος* (*anthos*) “flower”: the plant has flowers that can keep their shape for a long time (Genaust, 2017). The specific epithet *albus*, *a*, *um* “білий” indicates that this species has whitish stems and inflorescences.

As I.V. Sabadosh (2014) notes, in Ukrainian, most species of the genus *amaranthus* are denoted by the word *щиріця*, derived from the plant name *щир* < Proto-Slavic *ščirъ.

Aegilops cylindrica – Егілонс циліндричний (Jointed goatgrass)

Lat. *aegilops* came from Greek *αἴγυλος* “a kind of oat, barley weed, haver-grass”, derived from Proto-Indo-European *h₂eyǵ-, from where Greek *αἴζ* “goat” (Gledhill, 2008): animals like this herb. H. Genaust (2017) gives a slightly different explanation: from Greek *aix*, *aigilos* “grass” and *αἴζ* (*aix*) “goat”: the plant was considered a remedy for eye ulcers in goats. Specific epithet *cylindricus*, *a*, *um* “cylindrical” < Latin *cylindrus* < Greek *kylindros* “cylinder, roller” is given to the plant because of the elongated-cylindrical spikelets. Ukr. *егілонс* is borrowed from Latin.

Hyoscyamus niger – Блекота чорна (Black henbane)

Lat. *hyoscyamus* is a borrowing from Greek *ὑοσκιᾶμος* (*huoskiamos*) “hog bean”, compounded from two stems: *ὑς* (*hús*) “hog, pig” + *κιᾶμος* (*kúamos*) “bean”. The plant’s fruits resemble beans and cause convulsions in pigs, but according to another version pigs, on the contrary, are supposedly immune to the toxic effect of the fruits (Genaust, 2017). There is also a version that *ὑς* “hog, pig” is derogatory name, as the plant is poisonous (Gledhill, 2008). The specific epithet *niger*, *gra*, *grum* is given due to the dark colour of the seeds.

Ukr. *блекота* is obviously related to *блекотати* “to babble, to speak indistinctly” < Proto-Slavic *blekotati, *blekati* “idem” of onomatopoeic origin (Melnychuk et al., 1982). The name is due to the poisonous properties of the plant.

c) LAT/UKR: *Properties of plants + Place of occurrence of plants*

Cuscuta campestris – Повитиця польова (Field dodder)

Most researchers believe that Lat. *cuscuta* (and variants: *cuscūtha*, *cuscūte*, etc.) come from Arabic *كوشك* (*kušūl*), related to Aram. *ܟܫܬܐ* (*kāšā*), probably from *ܟܫܐ* (*kašā*) “to pile up” (this parasitic plant clings to trees), or from Akkadian *kasû* “a plant whose seeds are used for spices and medicine”. H. Genaust (2017) also believes that the Arabic *kušūla* is related to Greek *kadytas* “parasitic plant”. The specific epithet *campester*, *stris*, *stre* derives from Lat. *campus*, *i m* “pasture, field” and refers to the place where the plant grows.

Ukr. *повитиця* derives from the verb *витуся* “to climb”: the name is due to the fact that this plant climbs up other plants (Melnychuk et al., 1982).

Erigeron canadensis – Злінка канадська (Canadian horseweed)

Lat. *erigeron* came from Greek *ἐριγέρων* (*erigerōn*) formed by compounding: *ἔρι* (*éri*) “early in the morning” + *γέρων* (*gérōn*) “old”, which is motivated by the appearance of grey down on the fruits shortly after flowering or the

early appearance of seed heads (Genaust, 2017). The specific epithet *canadensis* indicates plant's native area – North America.

Ukr. *злинка* is obviously related to *зло, злий* “evil”, because this plant litters the fields (Melnychuk *et al.*, 1982).

Heliotropium europaeum – Геліотрон європейський (*European heliotrope*)

Lat. *heliotropium* is borrowed from Greek *ἡλιότροπιον* (*heliotropion*), formed by compounding stems *ἥλιος* (*hēlios*) “sun” and *τροπεῖν* (*tropēin*) “to turn”. The name motivated by the fact, that during the day the flowers turn to follow the sun (Genaust, 2017). The specific epithet *europaeus, a, um* refers to the geographical distribution of plant. Ukr. *геліотрон* is borrowed from Latin.

Eryngium campestre – Миколайчики польові (*Field eryngo*)

Lat. *eryngium* came from Greek *ἑρύγγιον* (*ērūngion*) “thorny plant” – the name originated from the description of spiny-leaved plant by Theophrastus (Gledhill, 2008).

Ukr. plant's name *миколайчики* is obviously borrowed from the Polish: *mikołajki, mikołajek* < proper name *Mikołaj*; the motivation of the name is unclear (Melnychuk *et al.*, 1982). According to I.V. Sabadosh (2014), there are no sufficient grounds to consider this botanical name borrowing from Polish; the word *миколайчики* is formed from *миколайки*, derived from *Миколай* (or directly from the proper name *Миколай*), motivation: the plant stands in the field despite the frost, during the winter Christian holiday of St. Nikolay.

Cirsium arvense – Осом польвовий (*Creeping thistle*)

Lat. *cirsium/cirsion* “kind of thistle” comes from Greek *κίρσιον* (*kirsion*): the name is motivated by the properties of the plant, which was used in the treatment of varicose veins < *κίρσος* “varicose veins” + diminutive suffix *-ιον* (Genaust, 2017).

Ukr. *ocom* < Proto-Slavic **osztъ* with root *os* “sharp” < Indo-European **ak-* “sharp”; cognate

to Lithuanian *āšutas, āšutai* “hair, horse hair”, Latin *acus* “needle”, Greek *ἄκανος* “thistle”: the plant has spiky prickly leaves (Melnychuk *et al.*, 1982).

Convolvulus arvensis – Берізка польова (*Field bindweed*)

Lat. *convolvulus* derives from the verb *convolvere, ēre* (Gledhill, 2008), formed with prefix *con-* “with, together” and the verb *volvo, ere*, “to twist, turn” – this weed entwine and wraps around other plants.

Ukr. *берізка* is suggested to be derived from **berz-* < **ob-verz-* “to entwine” (Melnychuk *et al.*, 1982). I.V. Sabadosh (2014) considers that this phytomenon is a result of the reinterpretation of diminutive *березка* (*берізка*) ‘small birch’ due to similarity of these plants’ leaves.

Orobanchе cumana – Вовчок соняшниковий (*Sunflower broomrape*)

Lat. *orobanche* comes from Greek *οροβάχχη*, formed by compounding *οροβος* (*orobos*) “bitter vetch, chickpea” + *ἄγχω* (*agchein*) “strangle”, the name is motivated by the fact that the plant is often parasitises legumes (Gledhill, 2008). The specific epithet *cumana* (*cumanus, a, um*) derives from the name of the ancient city of Cuma on the Apennine Peninsula, perhaps, native place of the plant.

For Ukr. plant's name I.V. Sabadosh (2014) cites an analogy with *вовчок*, “cabbage weevil, cockchafer larva”, all these insects are major pests in agriculture that eat roots, fruits and grain, and got their name from a predatory wolf (*вовчок* < *вовк* here means “little wolf”; parasitic plants are also pests).

d) LAT/UKR: Appearance of plants + Properties of plants

Agropyron repens – Пупій новзучий (*Couch grass*)

Lat. *agropyron* (*agropyrum*) is derived from Greek *ἀγρός* (*agros*) “field” and *πυρός* (*pyros*) “wheat”, perhaps referring to a weed resembling wheat (Genaust, 2017). The specific epithet *repens* “creeping” is a present active participle of present active participle of *repo, ēre* “to

creep, crawl” and given because the plant has long creeping rhizome.

Ukr. *nupii* comes from Proto-Slavic **pyrǫ*, **pyrǫbъ*, **pyro* “spelt” and also related to Greek *πυρός* (*pyros*) “wheat” (Melnychuk *et al.*, 1982).

Digitaria ischaemum – Пальчатка звичайна (Smooth crabgrass)

Lat. *digitaria* is derived from *digitus*, *i m* ‘finger’ due to the radiating spikes, finger-like shape of the panicle (Gledhill, 2008). The specific epithet *ischaemum* is formed from Greek roots: *ischo* “to stop” and *haema* “blood”: the plant has haemostatic properties.

Ukr. *пальчатка* is derived from the *налець* “finger”, probably calque of Latin *digitaria* (Melnychuk *et al.*, 1982).

e) LAT/UKR: *Properties of plants + Combination of factors*

Apera spica-venti – Метлюг звичайний (Common windgrass)

Lat. *apera* derives from Greek *aperos* “intact, unmutilated” each spike has at least a second flower stalk, whereas other *Agrostis* species do not (Genaust, 2017). The specific epithet *spica-venti* consists of two words: *spica*, *ae f* “ear” and the genitive form of *ventus*, *i m* “wind” – the plant has thin stems, spreading panicles that sway from the breath of the wind, grains very small and crumble easily.

The Ukrainian name *метлюг* is derived from *мимла* “broom, panicle” due to the shape of the inflorescence (Melnychuk, 1982).

Consolida regalis – Сокирки польові (Forking larkspur)

Lat. *consolida* derives from the verb *consolido*, *are* “to make solid, strengthen” (adj. *solidus*, *a, um* “solid”): the name was given to the plant due to its healing properties, it was believed to help heal wounds (Genaust, 2017). Specific epithet *regalis*, *e* “royal” < Latin *rex*, *regis m* “king”: this epithet was often given to plants for characteristics of the highest degree (colour, shape, size) by general aesthetic impact.

Ukr. *сокирки* (plural of *сокирка* “small axe”) – the flowers resemble small axes due to the

elongated upper leaf of the perianth in the spur or shape of the fruit (Melnychuk *et al.*, 1982).

The considered patterns of weed scientific names’ formation, in which a generic name was motivated by the appearance or properties of the plants, turned out to be the most productive in both Latin and Ukrainian languages. The specific epithets, meanwhile, were more diverse.

LAT/UKR: Usage of plants + Properties / Appearance / Place of occurrence of plants / Common epithet

Galium aparine – Підмаренник чіпкий (Cleavers)

Lat. *galium* is borrowed from the Greek *galaion*, derived from *γάλα* (*gala*) “milk” – previously, the flowers were used to coagulate milk in the production of cheese (Gledhill, 2008). The specific epithet is expressed by a noun *aparine* < Greek *ἀπαρίνη* (*aparine*) “clinging, seizing”, derived from the Greek *απαίρω* “lay hold of, seize”, itself coming from *από* “from” + *αίρω* “pull to lift”.

Ukr. *підмаренник* is obviously derived from the name of other plant *марена* (*Rubia*). Proto-Slavic *marěna* is cognate with *marati* “to pollute” due to the ability of the rhizomes of plants of the family Rubiaceae to dye in various colours (Melnychuk *et al.*, 1982). Previously, a red dye for fabrics was obtained from the roots of this plant. The specific epithet *чіпкий* points out that the stems and leaves of the plant are covered with small spines, and the fruit is covered with hooked bristles.

Melilotus officinalis – Буркун лікарський (Sweet yellow clover) (Svystunova *et al.*, 2024)

Lat. *melilotus* (*mēlilōtos*) comes from Greek *μελίλωτος* (*melilōtos*), formed by compounding *μελι* (*meli*) “honey” + *λωτός* (*lōtos*) here means “clover”. This name is motivated by the fact, that it’s a good honey plant. The specific epithet *officinalis*, *e* < *officina*, *ae f* “workshop, pharmacy” indicates using plant in medical practice. Ukr. *буркун* is a loanword from Turkish languages (Melnychuk *et al.*, 1982).

Xanthium spinosum – Непреба колюча (Cocklebur)

Lat. *xanthium* is borrowed from Greek *ξανθιον* (*xanthion*), derived from *ξανθός* (*xanthos*) “yellow” + diminutive suffix *-ιον*, because it was used for dyeing the hair yellow (Gledhill, 2008). The specific epithet is *spinosus*, *a*, *um* “spiny” < *spina*, *ae f*, because this plant has long and sharp spines.

Ukr. *нетреба* is obviously the result of the substantivisation of *нетрѣбѹи* “unworthy” related to *трѣбѹи* “needed, necessary”; the name is obviously due to the fact that *нетреба* is a weed that should be fought (Melnychuk *et al.*, 1982).

Anchusa officinalis – *Воловик лікарський* (*Common bugloss*)

Lat. *anchusa* is derived from the Greek *ἄγκουσα* (*anchousa*, *agchousa*, or *egchousa*) – the name for plants from which rouge and other cosmetic paint was made (cf. Greek *egchousizein* “to put on rouge”). Its infusion was also used to kill parasites (Genaust, 2017). The specific epithet *officinalis* indicates using plant in medical practice.

Ukr. *воловик* is the result of the semantic condensation of word combination *ox's tongue*. The name is explained by the similarity of the plant's leaf to an ox's tongue (Sabadosh, 2014) or the red colour of its root (Melnychuk *et al.*, 1982). The results of a quantitative analysis of factors determining semantic motivation for plant names in Latin and Ukrainian are given in Table 1.

Table 1. Percentage proportions of factors determining the semantic motivation of scientific plant names

Semantic motivation of plant names	Latin		Ukrainian	
	Generic name	Specific epithet	Generic name	Specific epithet
appearance	47%	44%	42%	37%
properties	43%	17%	38%	17%
place	-	15%	2%	16%
usage	5%	2%	3%	2%
other	5%	22%	15%	28%

Source: created by the author

Quantitative analysis showed that among the factors determining the semantic motivation of the names of weeds, the appearance of the plant predominates in both languages. The results of the study were in line with the findings of recent research, particularly in the field of cognitive linguistics. Having studied the names of medicinal plants in Romance, Germanic and Slavic languages, N. Panasenko (2021) claimed that the starting point of human cognitive activity is obtaining the primary information via visual, tactile, olfactory, gustatory, and acoustic channels. One of the peculiar properties of phytonyms is the reflection of various channel combinations in the plant names, with the undoubted priority of vision as the most important information processing channel. The priority of the visual channel can be explained by the fact that it allows us to

identify numerous and diverse signs of objects of the outside world: colour, size, shape, location in space.

These findings apply not only to medicinal plants but also to weeds. Most weed names are motivated by the appearance of the plants due to the priority of vision as the most important information processing channel. L. Usyk (2017), having compared the semantics of the names of medicinal plants in the Germanic and Slavic languages, came to the conclusion that in the process of plant naming, priority is given to propositional-dictum motivation, which fixes true knowledge about the object of nomination in the plant name, while the evaluative component is auxiliary and clarifying. In the case of choosing a motivational feature for naming a plant at the first stage, which involves obtaining information about the plant, the motivators

belong to the modus type and are mainly associated with sensory evaluations.

P. Dębowiak & J. Waniakowa (2019) believe the semantic motivation of phytonyms is the basis of the nomination mechanism in various European languages and their dialects. Plant names are motivated by several general features: their appearance, properties, place of occurrence, usage and other motivations. Among them, the most prevalent seems to be the one related to the appearance of plants and their most characteristic features. In the mentioned work, the authors focused on such characteristics as colour in the motivation of plant names. Other works also studied such motives for plant naming as size, by N. Panasenko (2024) and shape by A.J. Urniaż (2021).

Many names of weeds in Latin and Ukrainian are formed by secondary indirect designation, revealing the same mechanisms of metaphor and metonymy as other plant names (Panasenko, 2021; Kravchenko *et al.*, 2022). Another common factor, determining the semantic motivation is the properties of plants. It should be noted that many weeds are used in folk medicine, and are attributed with healing properties. An important remark in this case is the comment, that with regard to phytonyms, as in any nomination process that reflects a person's perception of reality, what is important are not so much the real, objective properties of the referent as those attributed to it by the naming subject (and which may, but not necessarily, coincide with the former) (Buława, 2023).

Some scholars consider this factor of semantic motivation to be decisive. A. Szwa-jczuk (2023), through a contrastive analysis of scientific and common names of ornamental plants in Latin, Polish and English, concluded that most names have been derived from plant's presumed properties. In terms of equivalence between Latin, English and Polish plant names, partial one prevails (total or zero equivalence is rare), as in this study. The fewest names of weeds are motivated by their use, which is due

to the specificity of the plants themselves.

Thus, most researchers recognise in the names of different groups of plants (medicinal, cultivated, ornamental, etc.) a semantic motivation with the priority of factors carrying sensory information: visual, tactile, olfactory, gustatory. This finding is confirmed in the case of scientific names of weeds, motivated primarily by their appearance and properties.

Conclusions

The scientific names of plants in Latin and Ukrainian are motivated multitude of common characteristics, such as plant appearance, properties, place, use and other. In both languages (Latin – 47%, Ukrainian – 42%), generic names of weeds motivated by their appearance prevail. They are often determined by such characteristics: shape of plant/its part (Lat. *conium*, *trifolium*, *chenopodium*, *capsella*, *bifora*, *cyclachena*, *portulaca*; Ukr. *сокирки*, *тонконіг*, *жабрій*, *куколиця*, *куряті очки*, *плоскуха*, etc.); colour of plant/its part (Ukr. *синяк*, *чорнощир*, *лобода*); appearance of inflorescences (Lat. *apera*, *echium*, *digitaria*, Ukr. *метлюг*, *пальчатка*) or of whole plants (Lat. *equisetum*, Ukr. *хвоц*, *грабельки*, *кудрявець*); similarity to other plants (Lat. *bromus*, *cenchrus*, *atriplex*, *glechoma linaria*, Ukr. *липка*, *березка*, *пирій*, *сиріниця*, *рутка*, *льонок*, etc.).

Generic names motivated by properties of plants are most often determined by such features: tactile sensation (Lat. *carduus*, *datura*, *eryngium*, *urtica*; Ukr. *будяк*, *волошка*, *осот*); specific vegetative properties (Lat. *erigeron*, *heliotropium*, *amaranthus*; Ukr. *розхідник*, *миколайчики*); blossoming time (Ukr. *грицики*, etc.); taste (Ukr. *гірчак*, *хрінниця*); negative properties (Lat. *lolium*; Ukr. *болиголов*, *блекота*, *дурман*, *злінка*, etc.); positive properties (Lat. *melilotus*, etc.) A fairly large group consists of names motivated by healing properties of plants; the nomination is based on both common perceptions about their restorative properties or using in the treatment of specific diseases (Lat.

consolida, cirsium, matricaria, Ukr. загойник, гу-
кавка, жабрій).

The usage of plants as a motivational factor is quite rare in both languages (Latin – 5%, Ukrainian – 3%) and is determined by applying them in the household, using for food or fodder (Lat. *cirsium, galium, anchusa*: Ukr. канатник, підмаренник, конюшина, etc.). Other factors influencing semantic motivation of plants are commemoration (*berteroa, descurainia, galin-soga*), borrowing from other languages. Among specific epithets, the most significant are the motivational factors associated with the appearance of the plant: colour of plant/its part (Lat. *niger, albus, incanus*, Ukr. білий, чорний, цій, etc.), shape of plant/its part (Lat. *cylin-dricus, tetrahit*, Ukr. пальчастий, трійчас-мий, etc.); size and number of plant parts (Lat.

pauciflorus, parviflora, Ukr. малоквітковий, дрібноквітковий, etc.), similarity to other plants (Lat. *artemisifolius, xanthifolius, heder-aceus*). This research paper did not exhaust all aspects of the problem; promising areas for further research are to determine the factors motivating the scientific plant names of other thematic groups as well as to increase the number of languages for comparison.

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Чинники семантичної мотивації наукових назв рослин

Олена Балалаєва

Кандидат педагогічних наук, доцент

Національний університет біоресурсів і природокористування України

03041, вул. Героїв Оборони, 15, м. Київ, Україна

<https://orcid.org/0000-0002-2675-5554>

Анотація. Наукові назви рослин є цінним пластом лексики для вивчення категоризації як процесу вербалізованого впорядкування знань про довкілля, специфічних для кожного варіанта наукової та мовної картин світу. Метою статті було проаналізувати фактори, що визначають семантичну мотивацію наукових назв бур'янів у латинській та українській мовах. У дослідженні використано етимологічний і семантичний аналіз фітонімів, зіставний метод та узагальнення. Матеріалом слугували 100 біномінальних назв рослин, отриманих у результаті суцільної вибірки з довідника бур'янів. У статті наведено продуктивні моделі творення наукових назв рослин у латинській та українській мовах, проаналізовано основні мотиви називання рослин в обох мовах. Дослідження продемонструвало, що наукові назви рослин в обох мовах мотивовані комбінацією кількох загальних аспектів, як-от: зовнішній вигляд, властивості, місце зростання, використання рослин тощо, зафіксованих у родовій назві та видовому епітеті. Отримані результати підтвердили висновки сучасних досліджень про те, що в основі механізму номінації лежить семантична мотивація фітонімів, зумовлена вибором мотиватора із зони інформації переважно про зовнішній вигляд (форму, колір, розмір, подібність рослин чи їхніх частин) та властивості (смак, запах, тактильні відчуття, позитивні чи негативні властивості). Результати дослідження можуть бути використані у підготовці фахівців різних спеціальностей галузі знань «Аграрні науки та продовольство»

Ключові слова: найменування рослин; мотиви номінації; фітоніми; родова назва; видовий епітет; етимологія; латинська мова; українська мова