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Contribution to the synanthropic flora of the City of Havana (Cuba)

Příspěvek k synantropní flóře města Havany (Kuba)

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Localities of 104 synanthropic plant species ascertained during floristic research in 11 districts of the City of Havana (Cuba) in 1988 are given. The following species were found as new for the flora of Cuba: *Brassica napus* L., *Rapistrum rugosum* (L.) All., *Solanum tuberosum* L., *Triticum durum* Desf.

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INTRODUCTION

During the first quarter of 1988 we made occasional floristic research of the synanthropic flora of the City of Havana (Ciudad de La Habana). We botanized in the following districts: Alamar, Boyeros, Casablanca, Cojimar, Guanabacoa, Habana del Este, La Habana Vieja, Luyanó, Miramar, Regla, Vedado. Special attention was paid to the surroundings of grain silos in the port of Havana (Regla district), where interesting adventive plants were found. Our research represents a continuation of the study by Mielcarek (1983) who made an analysis of ruderal flora of Havana in 1981 based on the floristic research of 20 town districts (cf. Mielcarek 1983: 116—119). The nomenclature follows mostly "Flora de Cuba" (Leon 1946, Leon et Alain 1951, 1953, 1957, Alain 1964, 1974).

The city agglomeration of Havana is situated on the coast of the Caribbean Sea. It occupies area of 720 km^2, and has a dense population of about two millions. The territory is influenced by the maritime tropical climate (Fig. 1). Prevailing winds are from east-north-east and east, air humidity is conspicuously high.

From the phytogeographical point of view, Havana lies in the subprovince called Central Cuba of the province Cuba, that belongs to the Antillean subregion of the Caribbean region. The region belongs to the Neotropical kingdom (Borhidi et Muñiz 1986).

Floristic data were recorded in the following ruderal habitats of Havana: along the sides of paths, streets and roads, at the foot of walls and buildings, along fences, on dumps, on empty spaces of residential areas, in ruderal lawns, along railway tracks, around grain silos (in Regla district), on the banks of streams and pools. Data from the sea coast, where more or less natural

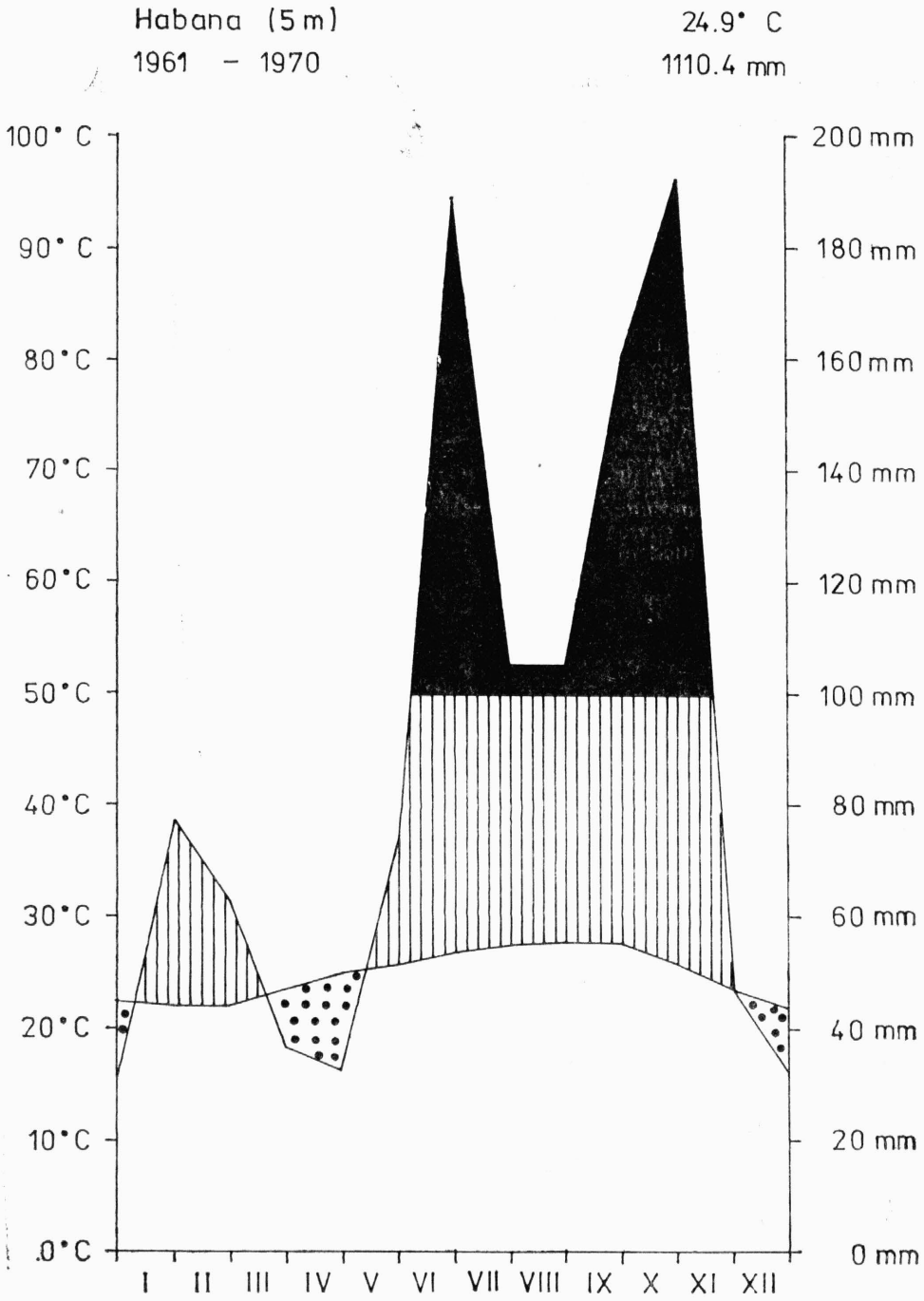

Fig. 1. Climate diagram of the meteorological station Havana. (1961—70, data according to BALDRIDGE et al. 1982.)

vegetation predominates, have not been included in the present paper. On fresh soils, relatively better supplied by nutrients and humus, species belonging to the alliance *Parthenio hysterophori-Bidention pilosae* SAMEK 1971 (cf. SAMEK 1971: 9) are to be found. These stands are in the course of succession often followed by ruderal lawns. Because of repeated human activities in ruderal sites, the shruby successional stage in most cases has not developed (cf. JEHLÍK et RICARDO Ms.).

The list of species with the respective localities is divided into two parts. In the first part, four new species for the flora of Havana and Cuba are mentioned, viz. *Brassica napus* L., *Rapistrum rugosum* (L.) ALL., *Solanum tuberosum* L., and *Triticum durum* DESF., together with a more detailed evaluation of their occurrence. In the second part, localities of the other species that were recorded previously in Cuba (mainly in the "Flora de Cuba", 1946—1974) are given. The herbarium specimens documenting our floristic data are preserved partly in the Department of Botany of the National Museum in Průhonice (PR), partly in the Institute of Ecology and Systematics of the Cuban Academy of Sciences in Havana (HAC).

NEW SPECIES FOR THE FLORA OF CUBA

Brassica napus L. (*Brassicaceae*)

Description: MARKGRAF (in HEGI 1958—1963: 459—460), HEYWOOD (in TUTIN et al. 1964: 337).

The subsp. *napus* (= subsp. *oleifera* DC.) was found. Economic plant known since the 16th century. The most important oleiferous crop plant of the world (SCHULTZE-MOTEL 1986: 313—314). Often as an escape from culture.

Localities: 1. Sierra Maestra mountains: mount Gran Piedra, one individual near an inn, 27. 5. 1985, leg. D. BLAŽKOVÁ PR. 2. Havana: Regla, two individuals in the vicinity of grain silos in the port, 11. 2. 1988, leg. V. JEHLÍK HAC. 3. Regla, two individuals in the surroundings of the port, 1. 3. 1988, observ. V. JEHLÍK. — At all localities probably only as an ephemerophyte.

Rapistrum rugosum (L.) ALL. (*Brassicaceae*)

Description: BUŠ (in KOMAROV 1939: 472), MARKGRAF (in HEGI 1958—1963: 491), GLEASON (1958: 210, 211 — Fig.), CARVALHO E VASCONCELLOS (in TUTIN et al. 1964: 344).

A very variable species (cf. THELLUNG in HEGI 1919: 290—295, MARKGRAF in HEGI 1958—1963: 491—493). The infraspecific variability could not be investigated because of lack of matured silicles in our material. *R. rugosum* is indigenous to the Mediterranean, Southeastern Europe, Anterior and Central Asia, where it grows in steppes, on saline soils, hillsides, in fields and ruderal sites. Secondarily it occurs in most countries of Central, Western and Northern Europe, locally in North Africa, North and South America, Australia, and New Zealand (JEHLÍK in HEJNÝ et al. 1973: 127). Locally transitionally introduced, but at some localities already naturalized.

Locality: Havana, Regla, four individuals in the vicinity of grain silos in the port — very probably introduced with Soviet grain, 11. 2. 1988, 29. 3. 1988, leg. V. JEHLÍK PR. At the locality very probably only as an ephemerophyte.

Remark: In the Americas seldom as an adventive plant, namely in the USA (GLEASON 1958: 210), Brazil (RAMBO sen. 1960: 49), Uruguay, andArgentina (HAUMAN 1925: 333).

Solanum tuberosum L. (*Solanaceae*)

Description: MARZELL (in HEGI 1927: 2595—2596), HAWKES et EDMONDS (in TUTIN et al. 1972: 198).

An economic plant indigenous to the South American Andes. In Cuba cultivated (LEON et ALAIN 1957: 359), in single cases as an escape.

Locality: Havana, La Habana Vieja, in one site in the vicinity of the port, 22. 1. 1988, observ. V. JEHLÍK, Nancy RICARDO et Yamila JIMÉNEZ. At the locality perhaps only as an ephemerophyte.

Triticum durum DESF. (*Poaceae*)

Description: ZIMMERMANN (in HEGI 1936: 507), HUMPHRIES (in TUTIN et al. 1980: 202).

An economic plant cultivated in regions with hot and dry climate. About 10 % of the worldwide yield of wheat belongs to *T. durum* (SCHULTZE-MOTEL 1986 : 1454).

Locality: Havana, Regla, sporadically in the vicinity of grain silos, introduced with imported grain, 29. 3. 1988, leg. V. JEHLÍK PR, det. I. BAREŠ. At the locality very probably only as an ephemerophyte.

LOCALITIES OF THE OTHER SPECIES

The numbers following the names of species indicate the town districts of Havana in which the synanthropic plants were recorded: 1 = Alamar, 2 = Boyeros, 2a = Boyeros: Finca Chata (estate of the Institute de Ecología y Sistemática ACC, Carretera de Capdevilla), 3 = Casablanca, 4 = Cojimar, 5 = Guanabacoa, 6 = Habana del Este, 7 = La Habana Vieja, 8 = Luyanó, 9 = Miramar, 10 = Regla, 10a = Regla: vicinity of grain silos in the port, 11 = Vedado.

Acacia farnesiana (L.) WILLD. — MIELCAREK (1983: 132). 1.
Acalypha alopecuroides JACQ. — MIELCAREK (1983: 129). 2a, 10.
Achyranthes aspera L. var. *indica* L. — MIELCAREK (1983: 123). 1, 3, 4, 9, 10.
Alternanthera paronychioides ST. HIL. — 9, 10.
Alternanthera sessilis (L.) R. BR. — MIELCAREK (1983: 124). 1, 2, 4, 8, 10.
Alysicarpus vaginalis (L.) DC. — MIELCAREK (1983: 135). 9.
Amaranthus crassipes SCHLECHT. — MIELCAREK (1983: 124). 1, 7, 9, 11.
Amaranthus dubius MART. — MIELCAREK (1983: 124). 1, 3, 10.
Amaranthus spinosus L. — MIELCAREK (1983: 125). 1, 4, 7, 8, 10.
Amaranthus viridis L. — 1, 2, 9, 10.
Antigonon leptopus HOOK. et ARN. — MIELCAREK (1983: 125). 10.
Argemone mexicana L. — MIELCAREK (1983: 121). — 1, 3, 4, 10.
Bidens pilosa L. var. *radiata* SCH.-BIP. — 1, 2, 4, 6, 7, 8, 9, 10.
Blechum pyramidatum (LAM.) URB. — MIELCAREK (1983: 145). 1.
Boerhaavia coccinea L. — MIELCAREK (1983: 122). 7, 8, 10a.
Boerhaavia erecta L. — MIELCAREK (1983: 122). 3, 4, 10.
Borreria laevis (LAM.) GRISEB. — MIELCAREK (1983: 140). 1, 2a, 4, 10.
Cassia occidentalis L. — 10.
Centrosema virginianum (L.) BENTH. — MIELCAREK (1983: 135). 1, 2, 4.
Chamaesyce berteriana (BALBIS) MILLSP. — 1, 3, 7, 10.
Chamaesyce hirta (L.) MILLSP. — MIELCAREK (1983: 130). 4, 7, 8, 9, 10.
Chamaesyce prostrata (AIT.) SMALL — MIELCAREK (1983: 131). 7, 9.
Chenopodium album L. — 10a: one individual introduced with grain.
Chloris inflata LINK — MIELCAREK (1983: 155). 1, 3, 4, 6, 9.
Cleome gynandra L. — 3, 10.
Commelina diffusa BURM. fil. — 10a.
Commelina erecta L. — MIELCAREK (1983: 154). 1, 3, 4, 6, 8, 10.
Crotalaria retusa L. — MIELCAREK (1983: 136). 1.

Cynodon dactylon (L.) PERS. — MIELCAREK (1983: 156). 1, 2, 8, 10.
Cyperus alternifolius L. — 10.
Datura innoxia MILL. — 1.
Dichanthium annulatum (FORSK.) STAPF — MIELCAREK (1983: 154). 1, 2, 2a, 3, 4, 6, 7, 8, 9, 10.
Digitaria sanguinalis (L.) SCOP. — MIELCAREK (1983: 156). 7.
Echinochloa colona (L.) LINK — MIELCAREK (1983: 156). 1, 3, 7, 10.
Echinochloa crus-galli (L.) BEAUV. — 10a.
Eclipta prostrata (L.) L. — MIELCAREK (1983: 149). 1, 10.
Eleusine indica (L.) GAERTN. — MIELCAREK (1983: 157). 1, 2, 3, 4, 6, 7, 8, 9, 10.
Eleutheranthera ruderalis (SW.) SCH.-BIP. — 1, 4.
Emilia sonchifolia (L.) DC. — MIELCAREK (1983: 149). 1, 2.
Erechtites hieraciifolia (L.) RAF. — 10.
Euphorbia heterophylla L. — MIELCAREK (1983: 131). 1, 2, 4, 8, 10.
Euphorbia heterophylla L. var. *graminifolia* (MICHX.) ENGELM. — MIELCAREK (1983: 131). 10.
Flaveria trinervia (SPRENG.) C. MOHR — MIELCAREK (1983: 150). 1, 2, 10.
Fleurya cuneata (A. RICH.) WEDD. — 2a.
Heliotropium angiospermum MURRAY — MIELCAREK (1983: 143). 1, 3, 4.
Heliotropium curassavicum L. — MIELCAREK (1983: 143). 10a.
Ipomoea acuminata (VAHL) R. et S. — MIELCAREK (1983: 142). 1, 4, 10.
Ipomoea tiliacea (WILLD.) CHOISY — 2, 8, 10.
Lactuca intybacea JACQ. — 1, 4, 9, 10.
Lantana camara L. — MIELCAREK (1983: 146). 1, 4, 10.
Lepidium virginicum L. — MIELCAREK (1983: 127). 1, 2, 4.
Leptochloa filiformis (LAM.) BEAUV. — MIELCAREK (1983: 157). 1.
Linum usitatissimum L. — 10a: one individual.
Lycopersicon esculentum MILL. — MIELCAREK (1983: 144). 10a.
Macroptilium atropurpureum (MOC. et SESSÉ) URB. — MIELCAREK (1983: 137). 1, 10.
Macroptilium lathyroides (L.) URB. — MIELCAREK (1983: 137). 1, 2, 7.
Malvastrum corchorifolium (DESV.) BRITTON — 3.
Malvastrum coromandelianum (L.) GARCKE — MIELCAREK (1983: 128). 10.
Melanthera deltoidea L. C. RICH. et MICHX. — 1, 3, 4, 9.
Melochia pyramidata L. — 8.
Merremia umbellata (L.) HALL. fil. — MIELCAREK (1983: 143). 2, 3, 4, 10.
Mimosa pudica L. — MIELCAREK (1983: 133). 1, 9.
Mirabilis jalapa L. — MIELCAREK (1983: 122). 2, 3, 4.
Momordica charantia L. — MIELCAREK (1983: 126). 1, 6, 10.
Morinda royoc L. — MIELCAREK (1983: 141). 7.
Oxalis corniculata L. — MIELCAREK (1983: 139). 1, 4, 10.
Oxalis debilis H. B. K. (= *O. corymbosa* DC.) — 1.
Panicum maximum JACQ. — MIELCAREK (1983: 158). 1, 2, 2a, 4, 6, 7, 8, 9, 10.
Parthenium hysterophorus L. — MIELCAREK (1983: 150). 1, 2, 2a, 4, 6, 9, 10.
Paspalum fimbriatum H. B. K. — MIELCAREK (1983: 159). 1, 2, 2a, 4, 6, 10.
Phyla strigulosa (MART. et GAL.) MOLD. — MIELCAREK (1983: 147). 1, 2, 6, 10.
Phylanthus amarus SCHUM. et THONN. — MIELCAREK (1983: 132). 10.
Plantago major L. — MIELCAREK (1983: 146). 6.
Portulaca oleracea L. — MIELCAREK (1983: 123). 4, 8, 9, 10.
Priva lappulacea (L.) PERS. — MIELCAREK (1983: 147). 1, 3, 4, 7.
Pseudoelephantopus spicatus (JUSS.) ROHR — MIELCAREK (1983: 150). 2, 2a.
Raphanus sativus L. — 10a: several individuals.
Rhynchelytrum repens (WILLD.) HUBBARD — MIELCAREK (1983: 161). 1, 2a, 4, 10.
Rhynchosia minima (L.) DC. — MIELCAREK (1983: 138). 9, 10.
Ricinus communis L. — MIELCAREK (1983: 132). 1, 4, 10.
Rottboellia exaltata L. fil. — MIELCAREK (1983: 161). 1, 2, 2a, 4, 8, 9.
Setaria geniculata (LAM.) BEAUV. — MIELCAREK (1983: 161). 1, 5, 7, 10.
Sida rhombifolia L. — MIELCAREK (1983: 129). 2a.
Solanum erianthum D. DON — 10.
Solanum torvum SW. — 4, 10.
Sonchus oleraceus L. — MIELCAREK (1983: 151). 1, 4, 6, 8, 9, 10.
Sorghum halepense (L.) PERS. — MIELCAREK (1983: 161). 1, 2, 4, 6, 8, 10.
Sporobolus indicus (L.) R. BR. — MIELCAREK (1983: 162). 1, 2, 2a, 4.
Sporobolus tenuissimus (SCHRANK) KUNTZE — In Cuba collected in the years 1973—1975 as a new species (CATASÚS GUERRA 1980: 4—5). 2, 2a, 8.
Stachytarpheta jamaicensis (L.) VAHL — MIELCAREK (1983: 147). 1, 4.

Stylosanthes hamata (L.) TAUBERT — MIELCAREK (1983: 138). 1.
Tribulus cistoides L. — MIELCAREK (1983: 139). 3, 4, 9.
Trichachne insularis (L.) NEES — MIELCAREK (1983: 162). 3, 10.
Tridax procumbens L. — MIELCAREK (1983: 151). 1, 2a, 4, 8, 9.
Triticum aestivum L. — 10a: more individuals of var. *erythrospermum* KÖRNICKE (det. I. BAREŠ). *T. aestivum* was discovered in Cuba in 1973 (CATASÚS GUERRA 1980: 4).
Typha domingensis (PERS.) KUNTH — 10.
Vernonia cinerea (L.) LESS. — MIELCAREK (1983: 151). 2, 2a.
Viguiera dentata (CAV.) SPRENG. — 1, 2, 2a, 3, 4, 6.
Waltheria indica L. — MIELCAREK (1983: 127). 1. 6, 10.
Zoysia japonica STEUD. — MIELCAREK (1983: 162). 2, 4, 9, 10.

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SOUHRN

V článku jsou uvedeny lokality 104 druhů synantropních rostlin, a to na základě floristického výzkumu v roce 1988 v 11 městských čtvrtích Havany (Kuba). Nově byly zjištěny pro květenu Kuby následující druhy: *Brassica napus* L., *Rapistrum rugosum* (L.) ALL., *Solanum tuberosum* L., *Triticum durum* DESF.

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