

FERENC GYULAI

ARCHAEOBOTANY IN HUNGARY

Seed, Fruit, Food and Beverage Remains
in the Carpathian Basin
from the Neolithic to the Late Middle Ages



BUDAPEST 2010

This book was published with the financial support by
the National Cultural Fund of Hungary,
the Ministry of National Cultural Heritage
and the Hungarian Academy of Sciences



Cover illustration
Seed remains from the Teleki mansion in the Buda castle, 15th century.

Photograph by
GÁBOR GYULAI

Hungarian text revised by
NÁNDOR KALICZ

Translated by
BÉLA BORSOS and PÉTER SZABÓ

Volume Editor
ERZSÉBET JEREM

ISBN 978 963 8046 93 2
HU-ISSN 1215-9239

© Ferenc Gyulai and ARCHAEOLOGIA Foundation

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any other information storage and retrieval system, without requesting prior permission in writing from the publisher.

2010

ARCHAEOLOGIA ALAPÍTVÁNY
H-1250 Budapest, Úri u. 49

Copy editing by Irwin Rovner, Péter Szabó and Réka Benczes
Desktop editing and layout by Rita Kovács, András Kardos

Printed by Prime Rate Kft.

Contents

1. Introduction	9
2. The history of Hungarian archaeobotanical research	19
3. The tasks of archaeobotany and its position within the system of sciences	23
4. Lineages of the most important cultivated plants in the Carpathian Basin	33
4.1. Phylogenetics of the most important food plants	39
4.1.1. Wheat	39
4.1.2. Barley	42
4.1.3. Rye	44
4.1.4. Oat	45
4.1.5. Common millet	45
4.1.6. Common lentil	46
4.1.7. Pea	47
5. The processing of botanical finds	49
5.1. Methodological foundations of processing	49
5.2. Classification of botanical finds	51
6. Collection and processing of botanical finds	57
6.1. The causes and main factors of seed/fruit preservation	57
6.2. Identification and evaluation of finds	57
6.2.1. Quantitative evaluation	57
6.2.2. Qualitative (ecosociological) evaluation	58
6.2.3. The development of plant associations	62
7. The history of domesticated plants from the beginnings until the Early Modern Period	67
7.1. The Neolithic	67
7.1.1. The beginnings of interrelations between people and the environment	67
7.1.2. The domestication of plants	68
7.1.3. Neolithic agriculture in Southeast and Central Europe	70
7.1.4. Agriculture in the Middle Neolithic	74
7.1.5. Agriculture in the Late Neolithic	78
7.2. The Copper Age	87
7.2.1. Botanical finds from Copper Age cultures	87
7.3. The Bronze Age	93
7.3.1. Early Bronze Age plant cultivation	93
7.3.2. Middle Bronze Age plant cultivation	95
7.3.2.1. Weeds of the Middle Bronze Age.....	103
7.3.2.2. Remains of Bronze Age flora	105
7.3.2.3. Agriculture in the Middle Bronze Age.....	106
7.3.2.4. Consumption of grapes and fruit in the Late Bronze Age	107

7.3.3. Plant cultivation of the late Bronze Age	110
7.3.3.1. Agriculture of the Urnfield culture	127
7.4. The Iron Age	137
7.4.1. Iron Age agriculture on the peripheries of the Carpathian Basin	137
7.4.2. Crop production of the Early Iron Age in Hungary	140
7.4.3. Crop production east of the Danube River in the Early Iron Age	142
7.4.4. Crop production in the Late Bronze Age in Transdanubia	142
7.4.5. Reconstruction of agriculture in the Iron Age	146
7.4.5.1. Crops produced, ploughland and farming implements	146
7.4.5.2. Developing of weed associations	148
7.4.5.3. Dyer's plants and herbs	149
7.5. The Roman Period	152
7.5.1. Crop production archaeology in Pannonia	152
7.5.2. Grain crops	153
7.5.3. Garden plants	155
7.5.4. Weeds and gathered plants	156
7.5.5. Orchards at the beginning of the Roman Period	157
7.5.6. The Pannonian roots of our viticulture	158
7.6. The Barbaricum in the Roman Period	165
7.6.1. Botanical finds in the Barbaricum in the Roman Period	165
7.7. The Migration Period	169
7.7.1. A climatic history of the Migration Period	170
7.7.2. The archaeobotanical heritage of the Early Migration Period	172
7.7.3. The archaeobotanical heritage of the Late Migration Period	173
7.8. The Hungarian Conquest and the Árpáadian Period	192
7.8.1. Farming skills of the Hungarians before the conquest	192
7.8.2. Botanical finds from the age of the conquest	197
7.8.3. Grain finds from the early Árpáadian Period	197
7.8.4. Remains of fructi- and viticulture	201
7.9. The Late Middle Ages	203
7.9.1. Botanical finds as sources of diet in the Middle Ages and the Early Modern Period	206
7.9.2. Plant remains in the Budavár medieval wells	209
7.9.3. Husbandry in the areas under Turkish occupation	212
7.9.4. Kitchen produce and spices	213
7.9.5. Late medieval horticulture in Hungary	217
7.9.6. Wild fruits	225
7.9.7. Medieval viticulture	228
7.9.8. Remains of medieval weed associations	231
7.9.9. Remains of the medieval environment	233
8. Food remains of archaeological cultures in the Carpathian Basin	257
8.1. Purpose and methods of analysis of food remains	257
8.2. Preparation of prehistoric food	259

8.3. Long forgotten farinaceous plants	261
8.3.1. White goosefoot	262
8.3.2. Water-chestnut	263
8.3.3. Oak acorn	265
8.3.4. Reed sweet-grass	267
8.3.5. Other cereals	269
8.4. On the nutritional value of ancient grains	270
8.5. Ethnobotanical research of einkorn and an attempt to save it	274
8.6. Modern examinations of ancient cereals	276
9. The beginnings of plant-based food	293
9.1. The significance of gruel-type food	294
10. Beverage remains	297
11. Food remains from the archaeological periods of the Carpathian Basin	301
11.1. Neolithic food remains	301
11.2. Copper Age food remains	301
11.3. Bronze Age food remains	302
11.4. Iron Age food remains	303
11.5. Roman Period food remains	306
11.6. Migration Period food remains	306
11.7. Food remains from steppe cultures	307
11.8. Eating habits of the conquering Hungarians	310
11.9. Food remains of the conquering Hungarians	312
11.10. Medieval food remains	315
12. References	317
13. List of Figures	367
14. Tables	393
15. Explanation of key terms in the text	475
16. Archaeobotanical Database – supplement in CD	479