A HUNDRED YEARS OF ARCHAEOBOTANICAL INVESTIGATION ON A ROMAN FORTRESS IN PANNONIA

Kenéz, Árpád1; Gyulai, Ferenc2;
1Department of Nature Conservation and Landscape Ecology. E-mail: kenezarpad@gmail.com
2Department of Agro-environmental Management. E-mail: gyulai.ferenc@kti.szie.hu
Szent István University Gödöllő, Hungary

Institute of Environmental and Landscape Management

Introduction
One of the most important Roman fortresses is located on the west bank of Lake Balaton (Fig. 1.). The 14 hectares ranged fortress in Keszthely-Fonyódpuszta was destroyed in the middle of the 5th century AD probably by the Gothics. Archaeological research started here in the second part of the 19th century. Plant macroremains were found in four excavation periods. The first botanical finds came to light in the year 1904 from a rubbish layer of a roman villa built in the end of the 4th century AD. The second archaelogical assembly is known from the 1970-72 excavations, sponsored by the Archaeological Research Institute. In the excavation the plant macroremains were systematically collected. The third prominent collection was made at the start of the year 1993. The fourth archaelogical research was made in 2006 within the frames of a joint German-Hungarian cooperation. The samples were taken systematically from a silts forming-layer of the roman-middle age 4th century AD. Keszthely-Fonyódpuszta is outstanding amongst the list of Roman age archaelogical sites. The area was in Hungary where hundred years archaelogical remains are available. At the same time the period of methodology could be periodised. With the help of plant remains we could reconstruct not only the cereal but also the fodder production, and the horticulture and viticulture during the roman occupation. During the hundred years research we found 680 thousand seeds and fruits of about 80 plant species.

Material and methods
The late roman plant remains of Keszthely-Fonyódpuszta were conserved by the burning down of the fortress, but the main morphological marks are more or less identifiable. This first task was the cleaning of dispoaces (seeds and fruits) from the large quantities of dirt (seed, dust, gravel and other organic remains). This operation was made by sifting, flotation and the combination of these methods with screen series (0.5 and 1.5 mm) and flotation machinery. After that we isolated the separated seeds with relevant identification literature and recent reference collection.

Results (Carpology)

Excavation 1904-05. (4th century AD.)
Features of the sampling: On the course of the course of a roman ridge, figured sample. 20 sign bell building (Fig. 2.)
Number of samples: 1
Number of plant remains: 14573
Number of taxa: 17
Main attributes: Double plants hasn’t been detected. The most important occurred were: wheat (Triticum), rye (Secale cereale), barley (Hordeum vulgare), smith’s wheat (Triticum dicoccum), farmer’s wheat (Triticum aestivum). The most important plant species were: rye and barley, followed by wheat (Triticum aestivum).

Excavation 1993. (3-4th century AD.)
Features of the sampling: Systematically sampling. Northern part of the site (Fig. 3.)
Number of samples: 1
Number of plant remains: 106
Number of taxa: 13
Main attributes: The undersized fragments of cereals in the samples are also present. The barley (Hordeum vulgare) is dominant opposite the rye and the wheat species. New seed species compared the previous excavation: field barley (Hordeum murinum), rye (Secale cereale), farmer’s wheat (Triticum aestivum), sapphire (Sorghum peruvianum), yellow flax (Linum leicunense).

Excavation 1970-72. (5th century AD.)
Features of the sampling: Systematically sampling. A. building (Fig. 4.)
Number of samples: 7
Number of plant remains: 352
Number of taxa: 29
Main attributes: From the cereals can be find the great proportion of wheat (Triticum aestivum var. rustica and Triticum aestivum var. rustica), barley (Hordeum vulgare), rye (Secale cereale), and a lower proportion of oat (Avena sativa), oats (Avena sativa).

Conclusions
The cereals coming from the late roman fortresses excavation differ in species composition from the Pannonian set of grain remains. The large number of seeds, the carbonized, micro layer thick layer of cereals found in front of the southern fortification gate, in a wall andouters thryp that at least one thousand tons of cereals must have been stored in the walls, summer in the towers before the attack and burnt. A part of the grains (presumably came from other provinces). This large amounts of grains were stored probably for meat covering. The most important cereals were barley: common wheat and rye. Oats, unmilled, sprouted and maize were also available. Among the popular pea, flax value and horse-bean seeds also occurred the figared lentil. (Some evidence of the local pinto-bell structure are available: peach, walnut, grape. Several grapevines cultures were grown. Carbonized grape-grain and keystone bread pieces indicate that the inhabitants had various and ornamental foods supplemented with important legumes and onion. The number of the weed species is high. They are mostly relatively high-growing water-tolerant weeds, which indicates that cereals were harvested at about two-thirds of the height of the stalks, probably using a scythe.

Figures
1. Figure 1. Location of the site.
2. Figure 2. Archaeological sites at Fonyód-Castrum (Made by Kenéz on the basis of Villa 2007.)
3. Figure 3. Character remains of bread – rye (Excavation 1970-72.)
4. Figure 4. Character remains of the digital species (Excavation 1970-72.)
5. Figure 5. Character remains of cereals (Excavation 1970-72.)
6. Figure 6. Character remains of the cereal species (Excavation 1993.)