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What does the „true” Boerhaave herbarium tell us about the practice of collecting plant specimens in the botanical garden Leiden?

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The Dutch physician Herman Boerhaave (1668–1738) was famous for his clinical teaching, but his botanical research was also renowned. Boerhaave (Fig. 1) inspired his pupils to set up botanical gardens and devise their own classification systems. His research resulted in the publication of two editions of the garden catalogue of the Leiden Hortus Botanicus, of which the latter (Boerhaave 1720), was deemed important enough to be used extensively as reference by Linnaeus (Linnaeus 1737). Devising a classification system was a major enterprise and must have required a substantial herbarium. Two herbaria were attributed to Boerhaave, but it appears unlikely – even though they have not yet been researched – that they were actually composed by him. From the collection of Naturalis Biodiversity Center, Leiden, we selected 100 specimens that were listed as collected by Boerhaave and verified 88 specimens as having been collected by Boerhaave. However, this small number raises the following questions: What happened to the rest of the herbarium that Boerhaave created? And how can we recognise a Boerhaave specimen?

We verified specimens as Boerhaave’s by comparing the handwriting on the adjoining labels with that of his handwritten seed registers (Leiden University Library: special collections BPL 3654). We identified specimens using floristic literature, comparing them to specimens on the Naturalis BioPortal (<https://bioportal.naturalis.nl>) and physically examining them. We studied the descriptions on the labels and their relation to the seed registers and garden catalogues, the decorations and the manner of mounting. In doing so we got a clear picture of how seeds were obtained, registered, cultivated and classified and how the specimens were mounted and decorated.

We considered a specimen to be Boerhaave’s when it contained a label in his handwriting or when it was mentioned on the sheet that it came from his collection or herbarium (Fig. 2). Our study showed that almost half of the plant species originated in the Mediterranean, Lamiaceae being the dominant family. Some specimens were exclusively described by Boerhaave, but successive garden curators and others also provided descriptions. Around 1900 the labels were glued to the sheets, which showed that they were originally stored alongside the sheets, not attached to them. This could explain why so few Boerhaave specimens are known as such: over time labels presumably vanished from the collection and as a result, specimens were appropriated by successive curators.

Keywords

18th Century, Botany, Gardening

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Fig. 1. Portrait of Herman Boerhaave, painted by Cornelis Troost (Rijksmuseum Amsterdam, CCO 0.1)



Fig. 2: Specimen of *Teucrium spinosum* L. with a label in Boerhaave's handwriting: „*Chamaedrys; spinosa; quaerenda*. 557/21“ referring to no. 557 in the seed register of 1721 (see Fig. 3). „*Quaerenda*“, „it needs to be checked“, means that he wanted to verify the identification.

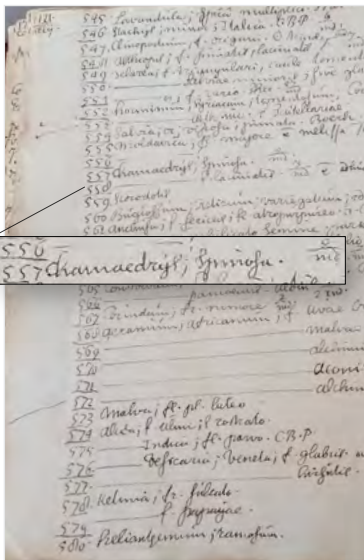


Fig. 3: A page from the seed register of 1721, where seeds are described from a „*Chamaedrys spinosa*“, sent to Boerhaave by Michelangelo Tilli (1655–1740). Boerhaave registered the seeds under no. 557 and later added a reference to an entry number in an ultimately never published edition of the garden catalogue.

The seed registers gave an insight into the „commercium botanicum“. The many correspondents listed show that Boerhaave was part of a vast network of botanists from all over Europe. He recorded the incoming seeds under the description supplied by his correspondents. On occasion he described the mature plant, or he added the number the species was assigned in the second catalogue (Boerhaave 1720) and even continued assigning numbers after publication (Fig. 3). In the 1718 register seeds sent to Boerhaave by Sebastien Vaillant (1669–1722) were described as coming from „a tomentose and broadleaved Lavender“. The similarity between an equally tomentose and broadleaved specimen of *Lavandula latifolia* L. collected by Boerhaave and one collected by George Clifford (1685–1760) suggests that Boerhaave provided Clifford with this particular species (Offerhaus et al. 2023).

The majority of the descriptions on the labels were linked to entries in the catalogue, where information was found on methods of propagation (e.g., by taking cuttings), wintering (e.g., in a hibernacle) or on the life cycle of a species. Only five species were listed as medicinal.

The decorative vases and ribbons applied to the specimens were produced by Leiden craftsmen. Their use, the variety of plant species and the precise and symmetric way of mounting links Boerhaave's specimens to contemporary herbaria, particularly two anonymous collections. Similarities between these herbaria (the Zierikzee herbarium and the D'Oignies herbarium) and the existence of corresponding descriptions in auction catalogues after the death of Boerhaave and his head-gardener Jakob Ligetvoet (1684–1752) suggest that these herbaria were part of one collection originating in the Leiden botanic garden during the first half of the 18th century (Offerhaus et al. 2023).

Gardeners were invisible technicians: knowledge generated by their activities was transferred to the curator of the garden, the professor of botany, who in turn was responsible for describing the plant species. Gardeners weeded, watered, dugged, planted, fertilised and propagated. Did they also collect specimens, dry them to perfection and decorate them? We think it highly likely that – given the vast undertaking of cultivating plant species and collecting, drying and describing thousands of specimens – the involvement of gardeners was far greater than surviving sources suggest.

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