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# **MODERN PEDAGOGICAL TECHNOLOGIES AND INNOVATIVE METHODS**

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## EVOLUTION OF THE LATIN LANGUAGE IN PRESCRIPTION WRITING

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The tradition of prescribing medications dates back thousands of years. Norms, rules, and conventions have evolved under the influence of historical, cultural, and even political factors. One of the driving forces behind the standardization and typification of general prescription norms occurred during the expansion of the Roman Empire, where the Latin language became a universal means not only of informal communication but also the language of science and religion.

The root words include "pharmakeia" mentioned in the bible, and «pharmaceuticus» from the late Latin, and «pharmakeutikos», from the early Greek. «Pharmakeia» is defined by some scholars as giving of drugs, magic potions, associated with the casting of spells, presumably for increased efficacy. A sorcerer, like a drug maker, would have been called a «pharmakeus» back then [1].

«Pharmaceutica's» is traced back to Latin, meaning: «of drugs,» or «healing or harmful medicine,» and «pharmakuetikos» from the Greek, reportedly meant «giver of drugs, poisoner». The modern prescription format, using abbreviations like «Rx» (from the Latin *recipe*, meaning «take»), evolved during the Medieval and Renaissance periods, influenced by Latin medical traditions [1].

There are different theories of «Rx» origin. The most widespread is that the «Rx» originating from the Latin word «Recipe» (take). Although, it's the most common and standardized theory, there is also a suggestion that "Rx" evolved from the Eye of Horus, an ancient Egyptian symbol of healing and protection and has been adopted by Romans under heavy influence of Egyptian medicine. This idea was mostly represented by alternative historians, symbolists, and writers in the fields of esoteric studies and ancient symbolism. Among such studies the most significant are: Manly P. Hall and his «The Secret Teachings of All Ages» [2], Albert Churchward «The Signs and Symbols of Primordial Man: The Evolution of Religious Doctrine from the Early Mystical Symbols to the Final Religion» [3], John Anthony West «Serpent in the Sky: The High Wisdom of Ancient Egypt» [4]. However, J. A. West doesn't directly consider «Rx» as Latin «Recipe» but indicates its meaning as the healing sign.

The Latin Language has been used as main language in prescription in Europe, because of expansion policy of the Roman Empire, while Islamic countries have used only Arabic. The most famous medical encyclopedia, «The Canon of Medicine» by Ibn Sina (Avicenna) [5] has been written in Arabic and translated into Latin by Gerard of Cremona only in the 12<sup>th</sup> century. Until the 16<sup>th</sup> century there weren't any formal regulations for prescription writing. Medical and pharmaceutical practices were based on tradition, guilds, or religious institutions. In this period the visible and strict structure of the prescription develops, but the use of Genitive case after «Rx» remains

sustainable, after first was standardized in the *Antidotarium Nicolai* [6], a book of medieval pharmacology, which contains over 150 prescriptions for different kinds of diseases.

Distinguishing features of the Latin Language of this period mostly include newly formed names of pharmaceutical forms. The most interesting of them have been mostly adopted from Arabic or Greek: *confectio* («con» – together, with; «ficio» – to produce) *alchermes* (pers. «kermes» – bloody, red) – a tonic made of raw silk, apple juice, grounded pearls, musk, ambergris, gold leaf, rose water, cinnamon, sugar and honey [7]; *electuarium* (gr. «ἐκλείχω» - to lick up) – paste like medicine mixed with honey [8]; *oxymel* (gr. «ὄξύς» – acid, «μέλι» – honey) – mixture of honey and different kinds of vinegar and has been used as antiseptic [9]; *lochoch seu linctus* (lat. «lingere» – to lick) – thick syrup [10]. Also, it is worth mentioning the influence of Arabic medieval medicine, which incorporated entirely new pharmaceutical terms into the Latin language. Among them are: *alcohol* (ar. «al-kuhl» – powdered antimony) [11]; *elixir* (ar. «al» – the «'iksīr» – dry powder) [12]; *syrupus* (ar. «šarāb» – a drink, beverage) – any thick liquid substance with added sugar [13].

The period from 16<sup>th</sup> to 18<sup>th</sup> century, well known as Renaissance introduced standardized form of prescription [14]. It involved the Latin language, as scholars of that time were trying to purify and unify its usage, primarily in science. By the influence of humanist grammarians (Priscian and Erasmus) Latin grammar became more structured and regulated. Such processes included formation of neologisms, mostly derivatives from Greek and Latinization of some terms, especially in chemistry: *Oxygenium* (gr. «ὄξύς» – acid, lat. «genus» – born from) – indicates the role of this element in formation of acids [15]; *Phosphorus* (gr. «φῶς» – light, «φέρω» – to carry) – describes the ability of the element to glow when exposed to oxygen [16]. The Renaissance saw the development of new drug formulations from reviving and standardizing classical medical knowledge. This revival was due to the renewed study of Greek and Roman medical texts, particularly through translations and commentaries by scholars [17]. It is worth mentioning of *cataplasma* (gr. «κατά» – on, upon, «πλάσμα» – to plaster, to mold) – is the moist and heated substance spread on the cloth to be placed on the skin [18]; *collutorium* (lat. «colluo» – to rinse out) – a mouthwash or gargle, this word was standardized and added to Renaissance's pharmacopoeias during translation of Galenic and Arabic medical texts [19].

With the rise of different scientific fields during the 19<sup>th</sup> century the role of the Latin language in prescription diminished, as national languages emerged to the surface. Despite the decreasing role of Latin, it remains the language of science. This period is well known for the main pharmacopoeias edition, such as The United States Pharmacopoeia (USP) – 1820, The British Pharmacopoeia (BP) – 1864 [21]. They brought solid regulations and laws not only in prescription writing but in general to pharmacy by transition from «handwritten compounding instructions» to more universal drug formulations. It established official, standardized drug names, reducing confusion.

As to the peculiarities of the Latin language it is necessary to point out the disappearance of some pharmaceutical terms: *electuarium*, *tinctura*, *pulvis et*

*linimentum*. These forms have mostly disappeared due to standardized pharmaceutical manufacturing.

The evolution of prescription writing has been deeply intertwined with historical, linguistic, and scientific developments. The Latin language played a crucial role in shaping medical terminology and prescription structure, serving as a universal medium in European medicine for centuries. From its early roots in Greek and Arabic influences to its formalization during the Renaissance, Latin provided a foundation for precision and consistency in pharmaceutical communication.

The Renaissance and subsequent centuries saw efforts to standardize medical language, integrating Greek and Arabic terms into Latin to enhance clarity in pharmaceutical texts. The development of pharmacopoeias in the 19th century further refined prescription writing, establishing official drug names and enforcing precise formulations. These efforts reduced ambiguity in medical prescriptions and facilitated international collaboration in medicine and pharmacy.

However, with the advancement of scientific disciplines and the rise of national languages in medical practice, the prominence of Latin in prescriptions declined. The introduction of standardized pharmaceutical manufacturing in the modern era led to the gradual disappearance of certain traditional Latin-based pharmaceutical forms, such as electuarius and linimentum.

The transformation of prescription writing reflects broader shifts in medical practice, from individualized compounding to mass production, and from regional traditions to global standardization. While Latin's role has diminished, its legacy continues to shape medical language and pharmacological traditions, underscoring its lasting impact on the evolution of medicine.

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