

F. López-Muñoz  
P. García-García  
C. Alamo

## *The virtue of that precious balsam...: approach to Don Quixote from the psychopharmacological perspective*

Pharmacology Department  
Faculty of Medicine  
University of Alcalá  
Madrid (Spain)

The most outstanding novel of the Spanish literature, *Don Quixote*, represents the source to which the different specialists who intend to deepen their knowledge of the late Renaissance society usually address. This masterpiece of Miguel de Cervantes has been frequently approached from the psychopathological perspective to obtain a psychiatric diagnosis of its main character, Alonso Quijano. Also, other clinical approaches from the traumatological and general therapeutical view (oils, ointments, balms and other pharmacy preparations) have been frequent. We have tackled *Don Quixote* from the psychopharmacological perspective, a barely explored field. In this work, we intend to study the therapeutical cures used during the Cervantine time for the treatment of insane and mentally disturbed people (sedatives like opium, laxatives like hellebore, tonics, irritants and surgical techniques like bloodlettings and «fuentes») and we analyze the limited and unspecific therapies, mainly of herbal origin (balms, purgatives and emetics), which Cervantes reveals to us in his novel. Among them, rhubarb root (*Rumex alpinus*), seeds of spurge (*Euphorbia lathyris*), St. John's Wort (*Hypericum perforatum*), main ingredient of Aparicio's oil, and rosemary (*Rosmarinus officinalis*), primary component of the famous balsam of Fierabras, should be highlighted. We have also examined the possible scientific influences which might have inspired Cervantes in this field, mainly the works of Juan Huarte de San Juan *The examination of men's wits* and the one of Andres Laguna *Dioscorides' materia medica*.

**Key words:**  
Psychopharmacology, History of Psychiatry, Don Quixote.

*Actas Esp Psiquiatr* 2007;35(3):149-161

### *La virtud de aquel precioso bálsamo...: aproximación a El Quijote desde la vertiente de la psicofarmacología*

La obra cumbre de la literatura española, *El Quijote*, constituye una fuente donde habitualmente beben los diferentes especialistas que pretenden conocer con mayor profundidad la sociedad renacentista tardía. Esta obra magistral de Miguel de Cervantes ha sido frecuentemente abordada desde la perspectiva psicopatológica para obtener un diagnóstico psiquiátrico de su principal personaje, Alonso Quijano. También son frecuentes los abordajes clínicos desde la traumatología y desde la terapéutica general (análisis de aceites, ungüentos, bálsamos y demás preparados de botica). Nosotros nos acercamos a *El Quijote* desde la vertiente del psicofarmacología, un campo escasamente abordado. En el presente trabajo se estudian los remedios terapéuticos empleados en la época cervantina para el tratamiento de los locos y enajenados (sedantes, como el opio, evacuantes, como el eléboro; tónicos, irritantes y técnicas quirúrgicas, como las sangrías y fuentes) y se analizan las escasas e inespecíficas terapias, fundamentalmente de origen herbal, que Cervantes nos revela en su novela (bálsamos, purgantes y eméticos). Entre ellas cabe mencionar la raíz de ruibarbo (*Rumex alpinus*), las semillas de tártago (*Euphorbia lathyris*), la hierba de San Juan (*Hypericum perforatum*), ingrediente del aceite de Aparicio y el romero (*Rosmarinus officinalis*), ingrediente del célebre bálsamo de Fierabras. También se analizan las posibles influencias científicas en que se pudo inspirar Cervantes en este campo, fundamentalmente las obras de Juan Huarte de San Juan *Examen de ingenios para las ciencias* y de Andrés Laguna *Dioscorides, acerca de la materia medicinal y de los venenos mortíferos*.

**Palabras clave:**  
Psicofarmacología. Historia de la psiquiatría. El Quijote.

«Be not distressed, friend... for I will now make the  
precious balsam with which we shall cure ourselves in  
the twinkling of an eye.»

Miguel de Cervantes  
*Don Quixote*

---

Correspondence:  
Francisco López-Muñoz  
Departamento de Farmacología  
Universidad de Alcalá  
Juan Ignacio Luca de Tena, 8  
28027 Madrid (Spain)  
E-mail: frlopez@juste.net

## INTRODUCTION

During the year 2005, the IV centenary of the publication of the *Don Quixote*<sup>1</sup>, of Miguel de Cervantes (Printer Juan de la Cuesta, Madrid, 1605) (fig. 1 A) was commemorated. *Don Quixote*, as one of the most important works of the history of the world literature, has been subjected to all types of specific studies, from the slopes of human knowledge, including, of course, the medical approach. In fact, some authors have annotated that the branch of knowledge most interested in the character of Cervantes is, after philology, medicine. Even more, the Cervantine novel has captivated and influenced the life pathway of great characters of the history of medicine, among which it is possible to mention, illustratively, Santiago Ramón y Cajal (1852-1934) or Sigmund Freud (1856-1939).

Miguel de Cervantes Saavedra (Alcalá de Henares, 1547; Madrid, 1616) (fig. 1 B), descendent of a family of doctors, soldier in the Army of King Phillip II, prisoner for 5 years in the harsh Berber jails of Algiers and public official of the

royal treasury, was a restless man, who lived in the era of great doubts. Precisely, the writing of *Don Quixote* took place in a historic period of transition, in which the Renaissance ways of facing the world lead the way to a complicated baroque style. The resources used by Cervantes to write *Don Quixote* makes this text not only a masterpiece of the world literature but also, according to the opinion of different experts, the starting point of the modern novel. Independently of the purpose of the author or sense of the work, whether it was ridiculizing the novels of cavalry of the era, a historic picture of the time in which the author lived, or an astute criticism of a society which, being the epicenter of the world, began to spring a leak, what is really undeniable is that he achieved the gift of secular endurance and was capable of converting this main fictitious character, Alonso Quijano, into a practically living historic reference<sup>2</sup>. Ramón y Cajal, to celebrate the III centenary of *Don Quixote*, brilliantly described how Cervantes was able to make his character come to life: «When a literary genus is able to create a vigorous, universal personification, full of life and greatness, and generator of the social sphere of large

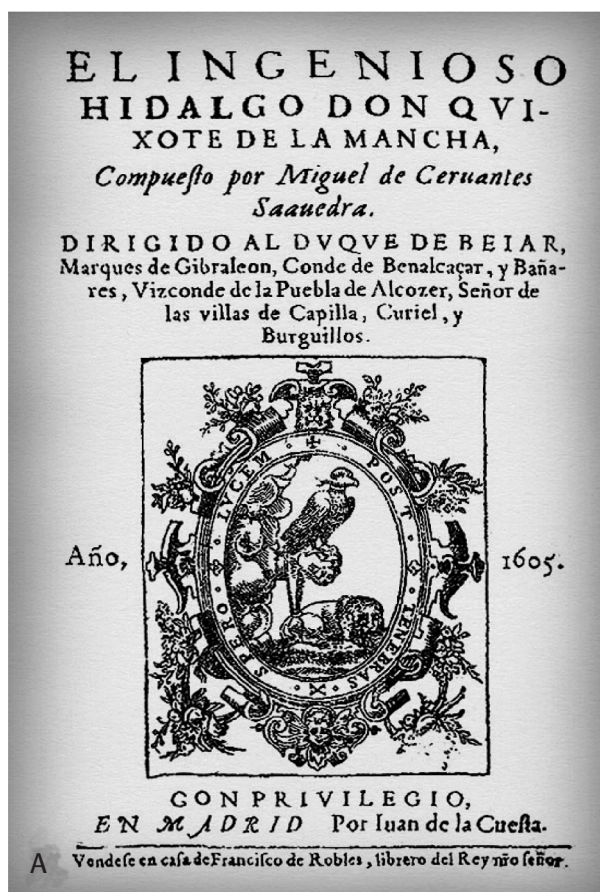


Figure 1 | Frontispiece of the princeps edition of *Don Quijote* (1605) (A), dedicated to the Duke of Bejar and published by the Juan de la Cuesta printing-house, located at Atocha street, and portrait of Miguel de Cervantes Saavedra (1547-1616), according to an oil painting dated 1600 and attributed to Juan de Jáuregui y Aguilar (1583-1641) (B).

trends of thought, the figure of the fantastic character grows into a giant, passes the limits of the fable, invades real life and marks with a special and indelible stamp all the persons of the race or nationality to which the stupendous spiritual creature belongs»<sup>3</sup>.

For the celebration of this IV centenary of *El Quixote*, publications on the most varied issues regarding this work have noticeably multiplied, including, of course, those related with health care disciplines. Several authors have stressed the teachings that this important work of Hispanic arts has left us, making it possible to extend our knowledge on the way of understanding many diseases (and their cures) in early Baroque<sup>2,4-6</sup>. The present work aims to offer another approach, this time from the psychopharmacological perspective, to that which has already been widely written about and described about this work and its context.

## SPANISH RENAISSANCE MEDICINE

The publication of the first edition of *Don Quixote* occurs, as has been commented, in an historic period of transition between the Renaissance and Baroque, period whose onset coincided in Spain with the death of Phillip II (1598) and concluded with that of Carlos II (1700). Within the frame-

work of this transition period of philosophic and cultural trends, *Don Quixote* is doubly trapped, although most of the authors find a more manifest influence of the renaissance premises in the work of Cervantes.

The main strength that propelled the renaissance movement was that of Humanism, a trend characterized by a great attraction towards knowledge of the classical cultures and a vivid desire to possess this knowledge, although first hand, and not deformed by the Arabic translators or by the representatives of the medieval scholastic schools, full of prejudices and limitations<sup>7</sup>. In this way, the prevailing theories in the medicine setting are those based on Galenism, with some hues of the incipient iatrochemical trends<sup>7-8</sup>.

Of all the scientific disciplines, medicine may have been that which took the longest to become a part of the renaissance spirit. However, at the end of the XVI century, medicine experienced a great advance in Spain, above all in the political science slope<sup>9-10</sup>. In this way, during the XVI and XVII centuries, eminent cultivators of medical science stood out (fig. 2), standing out among them the inhabitants of Valladolid Luis Mercado (1521-1611), physician of the Court of Phillip II and then the most renown and prestigious medical personality of his

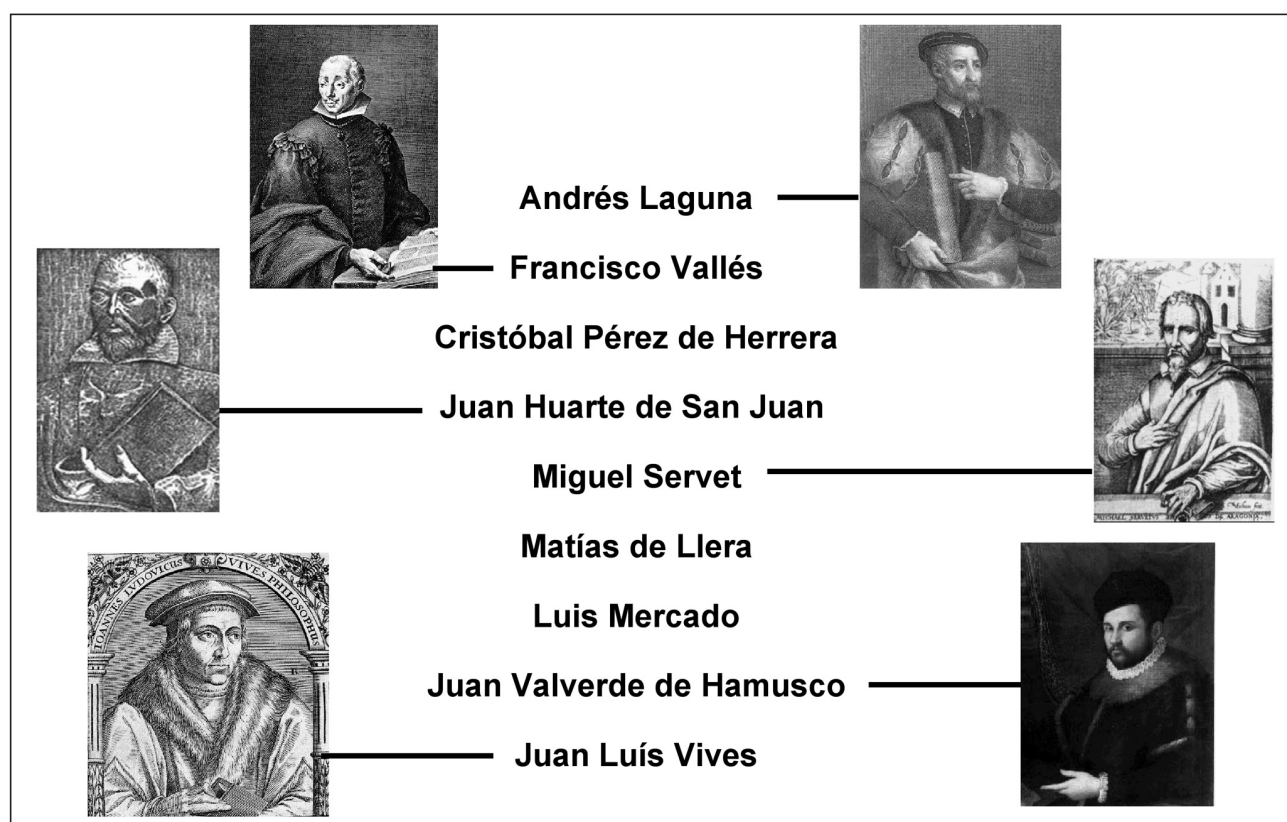


Figure 2

Important personalities of Spanish medicine and biological philosophy of the XVI and XVII centuries.



time. Juan Huarte de San Juan (1529-1588), the Spanish author having the greatest international projection of his era, also merits a prominent comment. He owes his glory to a single work, the *Examen de ingenios para las ciencias* (*The examination of man's wits*) (Baeza, 1575) (fig. 3 A). This text deals with the hypothesis of ingenuity as an individual aptitude for the exercise of a certain activity<sup>10</sup>. This work includes a small treatise that recurs to the classical Galenic theory of humors, according to which the four contraries that form the world (*hot, dry, cold and wet*) are combined in man's body to produce different humors. Following this theory, the portion in which the humors are combined in the body would determine the different temperaments<sup>10-12</sup>. Oliva Sabuco de Nantes Barrera (1562-?) should also be mentioned. In his work *Nueva filosofía de la naturaleza del hombre* (*New philosophy of the nature of man*) (1587), he eliminated the role of emotions in the etiopathogeny of different disorders. Antonio Gómez Pereira (1500-1558), important scholar of the human psychic (*Antoniana Margarita*, 1554), or Juan Luis Vives (1492-1540), defender of mental patients and defender of the theory of «body appetites», according to which emotions could affect judgement stability (*De Anima et Vita*, 1538)<sup>13</sup> should also be mentioned. All these authors, and their works, confirm the great interest provoked during the XVI century by mental disorders and the role played by the mind in the stabilization of organicity.

## THERAPEUTICS IN THE ERA OF *DON QUIXOTE*

In this renaissance framework, although clinical medicine had advanced a lot and the *physician* was capable of diagnosing many diseases, curing capacity was very limited as the therapeutic tools were practically the same as those available in the Middle Age, although their application was systematized and completed with some new incorporations<sup>14</sup>.

In this sense, it is necessary to mention some important advances in the field of pharmacotherapy during the pre-Cervantine era, many of them from the development experienced by alchemist techniques (fig. 4) that were placed at the service of pharmacology (alcoholic extraction, distillation, calcination, etc.) in order to find new medications. Without alchemy, neither chemistry nor pharmacology would have been born. Having an alchemical orientation, Paracelso (Theophrastus Phillippus Aureolus Bombastus von Hohenheim) (1493-1541) would revolutionize the therapy of the Renaissance, on understanding disease as an alteration of the *archeus*, a type of organizer of the chemical processes of the body, «the alchemist of the body»<sup>8</sup>, that would control the balance among the three natural principles, or «triad of principles»: *mercurius*, *sulphur* and *sal*. In the concept of Paracelso, *mercurius* would support the property of volatility (spirituality), so that its chemical alteration would be behind most of the psychiatric disorders, such as mania, vesania or «phenitis» (febrile delirium).



**Figure 3** | Three significant works of science of the Renaissance, that could have inspired the literary activity of Cervantes: A) Cover of the 1954 edition of *Examen de Ingenios para las Ciencias*, of Juan Huarte de San Juan (1529-1588), printed in Baeza by Juan Bautista de Montoya. B) Frontispiece of Dioscórides (*Acerca de la materia medicinal y de los venenos mortíferos*) (Antwerp, 1555), according to the translation and comments of Andrés Laguna (1494-1560). This version was even mentioned by Cervantes in *Don Quixote*. C) Cover of *Moriae encomium*, of Desiderio Erasmo de Rotterdam (1446-1536), printed in Paris, in 1511, by Gilles de Gourmont.



**Figure 4** | Alchemy played a significant role in the development of the future laboratory medicine. The image includes the work *The Alchemist in his laboratory*, a copper engraving of Pieter Bruegel the Elder (1525–1569), done in 1558 (Kupferstichkabinett, Berlin).

The contribution of the humanist doctors of the Renaissance meant a considerable enrichment of the classical legacy, something also clear in the pharmacotherapy setting<sup>8</sup>. In this way, the classical texts, fundamentally *Dioscorides*, were noticeably enriched, as can be seen in the famous editions of this work done by Pietro Andrea Mattioli (1500–1577) or Andres Laguna (1494–1560) (Fig. 3 B). Precisely, this last version (*Pedacio Dioscorides Anarzabeo, acerca de la materia medicinal y de los venenos mortíferos [on the medicinal material and deadly poisons]*, Antwerp, 1555) is cited by Cervantes in *Don Quixote*, as will then be commented on. In the same way, during the Renaissance, the first official pharmacopeia appeared such as the *Nuovo Receptario Compositio* (Florençia, 1498) and the famous *Concordie apothecariorum Barchinone medicines Compositis* (Barcelona, 1511).

In summary, we can state that the practice of the Renaissance therapy can be included in two large sections: medicine and popular pharmacy, that is, that based on the use of herbal plants, accessible to all the population, as they are economical, and the therapy previously compiled (although more extensively) in *Dioscórides*, that was applied according to the theory of the four purgative humors. Resort to the use of metals and minerals, defended by the followers of Paracelso, as mercury, used in the treatment of syphilis or Morbus Gallicus and antimonium, used as emetic, must be added to these two approaches<sup>2,15</sup>. Finally, a series of medications from America were incorporated, among them «guaiacum wood» (*Guajacum officinale* L.), sudorific used against syphilis or bubas disease<sup>2</sup>, besides tobacco and quinine.

The pharmacopea of Cervantes' time was fundamentally based on the application of oils, ointments, balms, roots, bark and syrups. The ointments, formulations for topical ad-

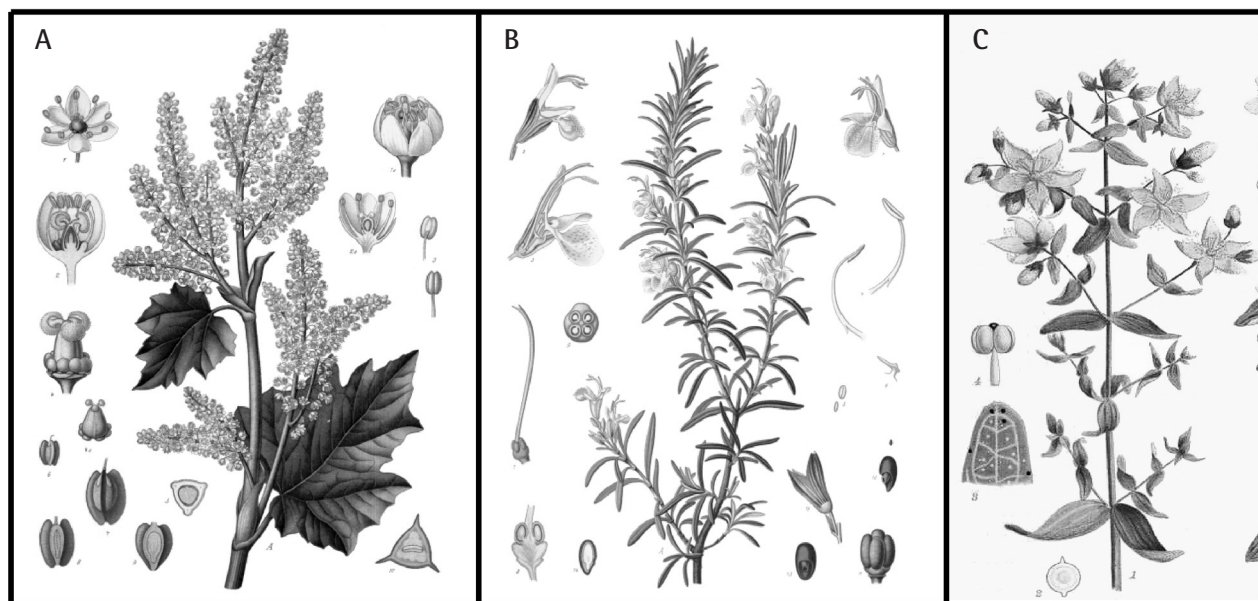
ministration, elaborated with fats, wax or resin, were greatly used in the traumatology setting. Balms, drugs usually elaborated with aromatic substances and aimed at curing wounds and sores, were also greatly used during the Renaissance. For example, it is sufficient to mention the famous balsam of Fierabras, so repeated in *Don Quixote*. Among the roots –root of *Rheum officinale* (Chinese rhubarb) or *Rumex alpinus* (monk rhubarb)–, one of the purgative therapeutic agents used most in the Renaissance era (fig. 5 A), rhubarb stands out. After, it influenced the application of these remedies to lunatics, the insane and mentally disturbed.

## MENTAL PATIENT IN LATE RENAISSANCE

The way of understanding insanity during the Renaissance differs little from that of the medieval concept, which denotes a less illustrated character than its name suggests. Thus, many of the manifestations of mental disease continued to be considered as a sign of diabolic intervention, partially due to the harmful influences of the religious wars that devastated Europe of the era<sup>8</sup>. In fact, all deviation from the established order, including mental, could be derived to the religious tribunals, as a sign of malignant possession, instead of the asylum institutions. This way of acting would be more outstanding even in the Spain of Phillip II, isolated in its intransigent Catholicism as a means of protection against the expansion of the Reform. The close relationship between insanity and witchcraft (fig. 6) was a constant during the Renaissance and Baroque period. In fact, the sadly famous *Malleus maleficarum*, a type of manual for inquisitors, edited in 1486 by Heinrich Kramer and James Sprenger, recurred to the Galenic humoral theory to propose that devils had the capacity to agitate the humors, so that the imaginary seems real. These postulates would persist in the modern Europe, as is seen in the work of Johannes Wier (1515–1588), considered one of the most rationalist physicians of the XVI century, who warned that certain persons considered possessed were really melancholic patients, although some of these simulated demoniac possession.

However, during the XVI and XVII centuries, a long process was developed by many physicians, aimed at despiritualizing or desatanize mental disease and psychiatric symptoms. This approach was only possible by removing protagonism from demoniac participation and the strengthening of the concept of deviated or pathological imagination<sup>16</sup>. Precisely, during the XV century, asylum institutions were founded for mental patients, generally attended by the so-called «hospital orders», and with a great social component. The first insane asylum of this type was founded in Valencia by Father Jofré (Juan Gilabert Jofré, 1350–1417), in 1409. In the same way, and following the humanist approaches characteristic of the era, the municipal institutions extended the «care coverage» of their hospitals to all types of mentally ill and insane.





**Figure 5** | Botanic plates of rhubarb (*Rheum officinale* Baill) (A) and rosemary (*Rosmarinus officinalis* L.) (B), two plants greatly used in therapeutic remedies of *Don Quixote*, and St. John's Wort (*Hypericum perforatum* L.) (C), subsequently recognized as ingredient of other curative remedies mentioned in the work of Cervantes.

### «Quixote»: said of that subject located outside the scope of sanity

Literature, it must be remembered, is a valuable tool of information that complements and clarifies the contributions of the scientific texts, which at times provide biased information through the intervention of the authors in the facts<sup>17</sup>. Thus, *Don Quixote* is a source of data having enormous value on the period in which Cervantes lived, including, of course, the view that the Spanish society of that turn of the century had of the insane or mentally ill.

The origin of insanity of the nobleman Alonso Quijano is told by Cervantes in the very onset of the novel, attributing it to compulsive reading about chivalry (fig. 7A), a literary type still popular at the beginning of the XVII century: the nobleman, states Cervantes, «gave himself up to reading books of chivalry with such curiosity and exasperation that he sold many fanegas (1.59 acres) of tillageland to buy books to read...; he spent the nights reading from sunset to sunrise, and his days from dawn to dark, and what with little sleep and much reading his brains got so dry that he lost his wits». Although this etiological factor is, from the current scientific mentality, tremendously spurious, it is necessary to remember the concepts of «humidity» and «dryness» in medical Renaissance material, heirs of the Galenic theory of the four humors. In this sense, even Huarte de San Juan himself commented that «much reading causes insatiability of the mind and produces insanity». Cervantes did not directly mention Huarte de San Juan in his writings. However, certain concordance of the proposals between the works of both authors

stands out, not only in the qualification of «ingenious» with which the erudite calls his protagonist, or in the previous comment on the relationship between excess of reading and insanity, but also in more than one aspect on the bibliographic sketch of the physical and mental condition of *Don Quixote*, coinciding with the postulates explained in the *Examen de ingenios*<sup>10,18</sup> (*Examination of man's wits*). Some authors have used the hypothesis that this book may be one of the few works of scientific character that Cervantes could have read<sup>19-20</sup>. In the framework of the Renaissance characterology followed by Huarte de San Juan, the character of the nobleman from La Mancha would correspond to a person having a choleric temperament, linked to air and the liver, characterized by a great inventive capacity and tendency to extravagance and by tall and thin stereotype. Chapter VII of the Cervantine work shows us clear proof of it, when, on returning from his first trip, after his room where his books were had been walled up and he could not access them, he so vehemently made the erudite Freston responsible that his housekeeper and niece «did not want to answer him more, because they saw that it increased his anger».

However, it stands out that Cervantes never committed the nobleman from La Mancha to a mental asylum or subjected him to humiliating techniques of restraint, as did Alonso Fernández de Avellaneda with his false *Quixote*, who ended up, by deceptions, in the Casa del Nuncio, name by which the Toledo insane asylum is known. Some authors suggest that this is a test that Cervantes did not consider that his character had a mental disorder, but rather was a subject who, due to continuous external influences, suffers a process of temporal and



**Figure 6** | Witchcraft scenes in the work of Friar Francesco Maria Guazzo, *Guaccius, Compendium Maleficarum*, published in Milan, in 1608, and having great influence in the XVII century.

episodic alteration of the perception of reality. Between these periods of forced «insanity», *Don Quixote* showed proof of a logical capacity to understand the world, overwhelming different characters in the work by his philosophic approaches and view without chains of reality. In this point, there are increasingly more authors who observe the influence of Erasmo de Rotterdam (1446-1536), through his famous work *Elogio de la locura* (Eulogy of insanity) (*Moriae encomium*, 1509) (fig. 3 C), where he defends the existence of a positive, favorable and divine insanity, in the literary approaches of Cervantes<sup>21-22</sup>. According to Alonso-Fernández, *Don Quixote* shows «lucid insanity», a type of «autometamorphosis delusion», that generates a false identification, both of himself and of other persons and objects<sup>23</sup>.

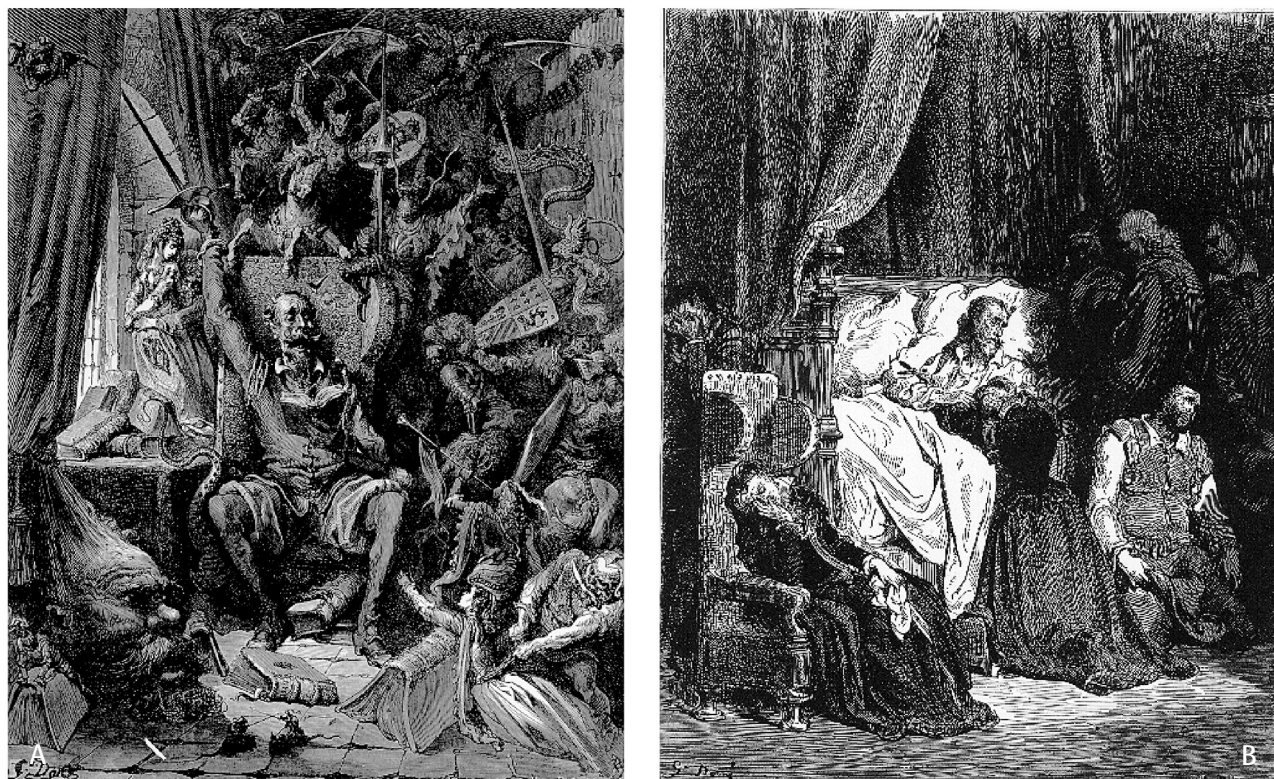
### With regard to madness of Alonso Quijano

As it is presently indicated by Pedro Lain Entralgo (1908-2001) in the introduction of the work *Molimientos, puña-*

*das y caídas acaecidos en El Quijote* (Bruises, punches and falls occurring in *Don Quixote*), of Antonio López Alonso<sup>24</sup>, «many and very different literary critical examinations, reformers of Spain, detectives or writer of human life, moralists, lawyer, psychologists have been the inquisitors who have tried to visit *Don Quixote* to ask him what he really is, according to that which is said of him by his creator». In this way, the most usual medical approach on the narrative plot of *Don Quixote* attends to the clinical examination of insanity that transforms the life of the nobleman Alonso Quijano<sup>25-26</sup>, who was diagnosed at each moment according to the knowledge of medical science.

One of the first doctors who wrote on the insanity of *Don Quixote* was the famous Philippe Pinel (1755-1826). He was followed by many other clinicians of the XIX century. Among these, Antonio Hernández Morejón (1773-1863) is of interest. In his work *Bellezas de medicina práctica descubiertas en el Ingenioso Hidalgo Don Quijote de La Mancha* (*Beauty of practical medicine discovered in Don Quixote*),





**Figure 7** | Engravings of Gustave Doré (1832-1883), titled *Don Quijote reading books on knights (A)* and *The death of Don Quixote (B)*, aimed at illustrating both the preface and the last chapter (LXXIV) of the French edition of *Don Quixote* of 1863. In these drawings, the author tried to symbolize the insanity of the future knight errantry and finally his return to sanity.

published in 1836, he presents a complete clinical history of *Don Quixote*, who he describes as choleric and melancholic, a description that introduces a first approach of diagnostic character<sup>27-28</sup>.

The psychiatric clinical examination of *Don Quixote* shows an elderly man (about 50 years), with symptoms of anorexia and insomnia, whose attitudes could be derived from cognitive deterioration, and with recurrent manifestations of visual hallucinations<sup>29</sup>. On the basis of this symptom manifestation, most of the pathobiographers of *Don Quixote* have coincided, at least in the initial phases, on the diagnosis of monomania, for some with hues of enlargement and erotomania<sup>30</sup>, that evolve, with time, towards a picture of paranoia<sup>26-27</sup>. In the framework of the celebrations of the III centenary of the publication of *Don Quixote*, the doctor and Argonese writer Ricardo Royo Villanova (1868-1943) contributed his own view on the clinical of the Cervantine character, establishing the following diagnosis: «... chronic paranoia or systematized or partial expansive type delusion, megalomania form and philanthropic variety»<sup>27,31</sup>. With the coming of the DSM-IV, the insanity of Alonso Quijano could be included within the diagnostic criteria of the «delusional disorders», or, if the ICD-10 is used, within the «disorders due to persistent delusion ideas»<sup>25</sup>. On his part, Bénézech suggests a differential diagnosis between three nosological ca-

tegories: delusional mania, fantastic paraphrenia and passionnal psychosis<sup>32</sup>. Among all these diagnostic criteria, the delusional ideas of *Don Quixote* undoubtedly stand out in the current nosological terminology. These are, mainly, grandeur, although as a whole in minority with ideas of persecution (the recourse to the «charmings» is also present) of defense or of erotism chaste<sup>31</sup>. Acceptance of these delusional ideas and those of grandeur by Sancho Panza makes some authors extend the mental disorder of the nobleman to his squire, speaking of a picture of *folie à deux*<sup>33</sup>.

In a recent approach to the study of insanity in the brilliant Cervantine work, Alonso-Fernández states that the true protagonist of the novel of Cervantes is not precisely *Don Quixote*, but rather the nobleman Alonso Quijano, who, in his psychopathological development, invents his character and converts it into a fictitious being<sup>23</sup>. In a conclusive way, Alonso-Fernández states that «*Don Quixote* is a psychopathological novel, protagonized by a mental disease». For this author, the pathological picture of Quijano fits into the diagnostic criteria of bipolar disorder. A test of this would be, as commented, the compulsive reading of chivalry books, although Alonso-Fernández believes this fact is not really the cause of his delusion, but rather an early symptom of it. Other authors do not show the same diagnostic conviction and take a position more in favor of a



hypomanic picture, that would explain the tendency to be removed from the properties and to make large economic expenses<sup>34</sup>.

The affective disorders may also be seen during all the Quixote-like pathway of Alonso Quijano. As an example, the melancholic overtone that the nobleman from La Mancha insuflated on calling himself «Caballero de la Triste Figura» (Knight of Sad Figure) is sufficient. This disorder seems to gather more intensity in the last moments of the life of Quijano (fig. 7 B). In fact, the rural doctor that attends him, with his scientific knowledge, and his companion Sancho, with his popular knowledge, attribute the physical deterioration of *Don Quixote* to his melancholia and possibly the cause of his death. Textually, the nobleman says on his death bed: «... In last year's nests, there are no birds this year». Thus, we have a picture of morbid melancholia<sup>5</sup>.

However, the perception of the insanity of *Don Quixote* is not exempt from criticisms, there being authors who have wanted to ignore it, speaking of a hysterical mitomania or even of a character repeatedly subjected to demoniac possession<sup>35</sup>. For others, the meaning of «insane» may be, in the Cervantine context, something completely different from that which is presently understood by psychiatric patient<sup>25</sup>. This is the thesis defended by the philologist and historian Américo Castro (1885-1972), for whom Alonso Quijano is very far from being insane or mentally ill, but rather to the contrary. He is an enterprising person with hopes who lives life in a «rash» way<sup>22</sup>. Some outstanding specialists in literature, as Torrente Ballester<sup>36</sup>, also manifest this posture. For them, the insanity of *Don Quixote* is only a literary artifice of its author to be able to exercise, from acts, thoughts, comments and interpretations of a poor madman, a very acute and astute criticism of the society in which he had to live, and whose repressive capacity is quite clear not only within religion sphere but also in the political one. Martín-Agaruz and Bustamante-Martínez state that in *Don Quixote*, exaltation of insanity predominates as a powerful source of vitality and that Cervantes plays with a double meaning of this word<sup>10</sup>. Thus, it is not well known if *Don Quixote* is a sane person who commits crazy acts or a madman with moments of lucidity<sup>25</sup>.

Finally, another group of authors rule out the psychiatric disease of *Don Quixote* and are inclined towards a disease of neurological nature. Thus, Alonso Quijano would only be an individual with presenile dementia. García-Ruiz and Guliksen state that Cervantes gave us the representation of a real patient, with dementia with Lewy bodies<sup>37</sup>, a variant of Alzheimer's disease, characterized by progressive cognitive deterioration, oscillations in cognitive capacity, recurrent visual hallucinations and systematized illusions. In this point, we can again remember Huarte de San Juan, who, in the 1594 edition of his *Examen de ingenios para las ciencias*, goes deeply into the important contribution of imagination for the forming of judgement, citing patients with dementia as an example of bad judgement<sup>10</sup>.

## THE PSYCHOPHARMACOLOGICAL REMEDIES IN THE CERVANTINE PERIOD

At present, psychopharmacology is a fully consolidated scientific discipline, that is widely accepted differential within the framework of pharmacology. However, this discipline is quite recent, coming of age in the decade of 1950's, with the clinical introduction of the first antipsychotics, antidepressants and anxiolytics<sup>38</sup>. Thus, speaking of psychopharmacology during the late Renaissance is, at least, risky and pretentious.

During the low medieval period, Galenism suffers a process of Christianization, that contemplates the soul as something immaterial. Thus, animic diseases, in this scholastic conception are understood as secondary to the material instrument that supports it, that is, the brain, last object of the therapeutic approach of these disorders. In this approach, the psychological techniques, basically in the hands of theologians and priests, play a much more important role than physical therapies<sup>39</sup>. Physical treatment, aimed at contradicting the production of *materia infirmitatis*, in the prerenaissance period, was based on two basic pillars: an adequate life regimen, above all from the dietary perspective and when necessary, complementation with different herbal drugs, such as hellebore (*Helleborus niger*) or opium (*Papaver somniferum*)<sup>40</sup>. The use of these classical techniques continued to be a usual practice in the modern period. Thus, laxatives, among these hellebore standing out, to shift or eliminate the excess bile and acid humors, the bleeds and blood lettings, irritants, such as cauteries, moxas, setons or vesicants, and other remedies, such as tonics, cordials, bitter wines of quina, absinthe or gentian, and cantharis powders are used<sup>41</sup>.

The introduction of an important number of remedies based on chemical and herbal products is owed to Paracelsus, one of the key figures in the therapy of the early Renaissance. Standing out among them are the so-called «arcanas», that can only be prepared by «knower of the art» and that are made up of mixtures of opium, mandragora, hellebore, camphor, etc., and the «quintessences». Thus, *quintessencia auri* was recommended for *lunatici*, basically a stimulant, while sedative and specific treatment for *vesani* was indicated<sup>39</sup>.

Among the purely psychopharmacological tools, sedatives continued to be the agents used most during the modern period for the treatment of psychiatric patients, opium standing out among them. Thomas Sydenham (1624-1689), to whom the comment that the best Treatise of his era to learn medicine was *Don Quixote* is attributed, was a fervent defender of this narcotic and in the XVII century, and whose laudanum enjoyed certain popularity. This was elaborated from opium, cinnamon, clove, and saffron, dissolved in «wine of Spain». The opiates, in fact, had a relevant place in the therapy of the anxious, phobic and obsessive phenomena while these were interpreted as symptoms of melancholia

and their use continued practically until the end of the XIX century<sup>42</sup>. However, these sedative remedies, of psychopharmacological nature, are not mentioned in *Don Quixote*, a fact that is not due to the ignorance of the author, who, as we have commented, was not unconnected to therapeutic material, but rather, as several authors have postulated, to an excess zeal against the Inquisition authorities, that did not approve of this type of medicines<sup>43</sup>.

Thus, the pharmacological remedies to approach «insanity» at the end of the XVI century are very few, have eminently non-specific character and herbal origin. As an example of the hypothetical etiological remedy, hellebore, obtained from the plant *Helleborus niger*, can be mentioned. The emetic properties of this substance were understood in the historical context in question as catharsis, purification or purgation tools. In this way, vomiting would allow for the recovery of the *eukrasia*, that is, the correct mixture of humors in which health is based<sup>8</sup>. However, the effects of this substance were enormously drastic: vomiting, cramps, spasms, seizures and loss of consciousness. Other vegetal substances that form a part of the therapeutic armamentarium of the medicine of mental diseases were stramonium (*Datura estramonio*), henbane (*Hyosciamus albus* or *niger*), belladonna (*Atropa belladonna*) and valerian (*Valeriana officinalis*), agents that were used as poisons during the Middle Age in the setting of the practice of witchcraft («witches' unguents»). It must also be stressed that the therapeutic armamentarium available in this period was increased with new drugs and remedies from the botanic species brought from the New Worlds, such as extracts of cinchona quina bark, used as tonic in patients classified as «asthenic»<sup>39</sup>, or tobacco, used as stimulant and «cerebral decongestants».

### With regard to therapeutic management of madness in *Don Quixote*

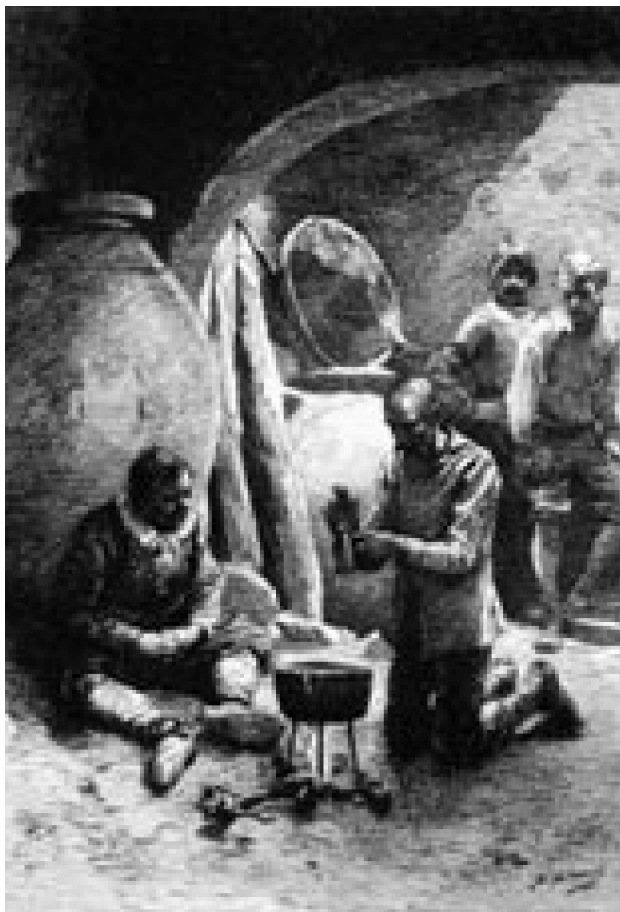
Different authors have stated that *Don Quixote* is a work that reliably reflects the therapeutic procedures of his era and can serve as a study tool to go deeper into the knowledge of the medical discipline during the Cervantine period<sup>43</sup>. It must be remembered, in this sense, that Cervantes was a participant, as son of a surgeon-blood letter and grandson of Cordovan physician, of certain knowledge of the art of medicine, knowledge that is spread to his masterpiece. When the young Mr. Lorenzo de Miranda asked *Don Quixote* if «he had studied in the schools» and «what sciences had he heard of?», the nobleman responded that of knight-errantry is «a science that includes all or most sciences of the world», insisting that the knight should be a legal expert, theologian, astrologists, mathematician, should be adorned of all the theological and cardinal virtues and «must be a physician, and mainly herbalist, to know the herbs that have the virtue of curing wounds in the middle of depopulated and desert areas». Another comment made in the work gives rise to thinking that Cervantes knew the medical and botanic manuals of the era: «With all, *Don Qui-*

*xote* responded I would rather have just now a quarter of bread, or a loaf and a couple of pilchards' heads, than all the herbs described by Dioscorides, even with Doctor Laguna's notes». Possibly the wide knowledge of plants, some with curing properties, that Cervantes shows comes from reading technical works, such as the famous edition of *Dioscórides* edited by Andrés Laguna in the middle of the XVI century (fig. 3 B). In this sense, from a detailed medical reading of *Don Quixote*, it can be deduced that Cervantes did not contemplate the use of primary psychopharmacological action agents but recurred to the use of different pharmacy preparations with secondary or differed psychopharmacological effects, such as certain balms, purgatives or emetics.

The therapeutic remedies par excellence in *Don Quixote* are the balms, standing out among them, for the continuous and successful references to their use, the so-called «balsam of Fierabras», a therapeutic panacea for *Don Quixote*: «All this would be well dispensed with —answered *Don Quixote*— if I had remembered to make a flask of Fierabras balsam, which with a single drop would have saved time and medicine». The balsam of Fierabras, besides the conventional medical therapy, belongs to the combination of magical remedies that the medieval chivalrous literature is plagued with. According to this tradition, compiled in the *Historia Caballeresca of Carlomagno*, Fier-a-bras («that of the ferocious arm») was a giant saracen that carried two barrels of balsam stolen in Jerusalem on his horse that came from that which had been used in the grave of Jesus. During the fight, the giant lost the barrels, that were found by his enemy Oliveros, one of the Twelve Peers of France, who drank the balsam and was cured of his mortal wounds.

The salutary and effective balsam referred to by *Don Quixote* would be made up of oil, wine, salt and rosemary, following the common procedure in the pharmaceutical practice at the time, that is, the mixture of several simple medicinal products (three vegetal and one mineral) to obtain a compound, in the style of the famous remedies<sup>20,24</sup>. The elaboration of the balsam is also described by *Don Quixote* (fig. 8); the four component («simple») should be put on the fire in a pot and cooked for a long time, to finally pour the product («compound») into a tin oil bottle, on which «more than eighty» Lord's prayers, Hail Marys, hails and creeds are prayed, accompanying each word with a gesture of a cross «as a blessing», essential for the balsam to be effective. The nobleman, even, indicated its posological regimen: if in some battle «they have cut me in half through the middle of the body», it will only be necessary to carefully join the two halves «before the blood congeal» (coagulates) and «give me to drink but two drops of the balsam I have mentioned, and thou shalt see me become sounder than an apple». The effects of the balsam of Fierabras are also described by Cervantes: initially intense vomiting, followed by profuse sweating and fatigue and then deep sleep. On waking (3 hours later), the repairing effect was so marked that the nobleman though he was completely cured.





**Figure 8** | Nitric Acid engraving of Ricardo de los Ríos (1846–1929) on an original drawing of Jules Worms (1832–1924), titled *Don Quijote prepares the balsam of Fierabras*, and for the French translation of *Don Quixote* done by Cesar Oudin and Francois de Rosset (*L'Histoire de Don Quichotte de la Mancha*, Paris, Librairie des Bibliophiles, 1884).

However, the effects of the potion on the squire are completely different: «anxiety, retching, sweats and faintness» for 2 hours, feeling, in the end, in worse condition than before taking the remedy.

Among its ingredients, rosemary stands out as an agent which is attributed abundant therapeutic properties («From the virtues of rosemary, a whole book can be written», says the popular Spanish saying). Belonging to the family of the *Lamiaceae*, rosemary (*Rosmarinus officinalis* L.) (fig. 5 B) is a known choleric, characteristic that has been partially confirmed in animal experiments, and as diuretic. In the same way, it has been indicated that it could have spasmolytic activity, due to one of its components: borneol. Its stimulant properties are also clear. During the XVI century, rosemary entered to form a part of the composition of many medicinal preparations, such as Opodeldoc balm, Porras's balm, Aparicio's oil and tranquil balm<sup>44</sup>. Of rosemary, wrote

Andrés Laguna, in his adaptation of the *Dioscórides*: «eating its flower as canned food, comforts the brain, heart and stomach; intensifies understanding, restores lost memory, awakens the senses, and, in summary, is a healthy remedy against all cold diseases of the head and stomach».

Purgatives are commonly mentioned in the Cervantine work, precisely in the sense that during its elaboration, these agents were given in the mental health framework. That is, as substances capable of eliminating morbid humors, permitting spiritual purification. Thus, the priest of the place where Cervantes does not want to remember comments, in relationship to the nobleman: «In need of a little rhubarb to purge their excess of his fury». The rhizome of rhubarb of the monks (*Rumex alpinus*), rich in tonic and chrysophanic acids, has purgative and tonic properties, and was used to purge the choleric and phlegmatic humors. Consumption of spurge seeds (*Euphorbia lathyris*), commonly known as farmer's rhubarb, a plant currently considered as toxic, but greatly used in the XVI century due to its double action mechanism: purgative and emetic, is also mentioned in *Don Quixote*. It was stated that if the leaves were pulled out downwards, it worked as a purgative, while if they were pulled out upwards, it induced vomiting<sup>44</sup>.

On the contrary to that commented up to now, other herbal remedies with psychopharmacological properties are mentioned in the Cervantine work, although with different uses than those of any possible therapy of a mental disorder, possibly because Cervantes, as the doctors of the period, ignored these therapeutic characteristics of which we are participants at present. Thus, in numerous times of the narrative, the author refers to the act of «plastering» or applying a «plaster» to oneself. These plasters («bizmas») were poultices made of tow, liquor, incense, myrrh and other ingredients, whose purpose was to bring relief to the area of the blows and traumatism. One of these plasters, called «Aparicio's oil» was applied to *Don Quixote* by the in-love Altsidora to cure certain wounds, in spite of its high price (she based this remedy on the popular saying «as expensive as Aparicio's oil»). The name of this preparation (also technically called *oleum magistrale*), whose composition was a great secret until the XVIII century when it was published in the *Pharmacopea Hispana* (Madrid, 1794), is due to Aparicio de Zubia (?–1566), a Moorish healer from Lequeitio who invented this formula<sup>45</sup> with the base of, among other components (rosemary, olive oil, myrrh, trementine, worms, and juniper resin), of St John's Wort or hypericum (a substance obtained from the plant *Hypericum perforatum*) (fig. 5 C). In the era of Cervantes, the wound-healing properties of this herb (also know, for this reason as «soldier's herb») were already known. It was greatly used by the knights of St. John of Jerusalem for the treatment of the wounds that occurred in the battlefields during the Crusades, although possibly not for its marked antidepressive properties. However, this herb was used in exorcisms practiced in the Tribunal of the Holy Office of the Inquisitions, to scare away the spirit of depression and other nervous conditions.

Curiously, Cervantes, besides opium (for the reasons commented on previously) did not mention the use of tobacco (*Nicotiana tabacum*), a plant imported from the New World in his work. Its use, therapeutic and recreational, had already been generalized in Spain of the Habsburgs, in which it was known with different names such as «hierba del diablo», «hierba de la consolación» or «hierba de todos los males» (Devil's weed, herb of consolation, or herb of all diseases). Among the traditional uses of tobacco, the application of infusion enemas of the leaves of this plant as a powerful (although dangerous) laxative and as an agent capable of stimulating the brain and the imagination stands out.

Finally, Alonso Quijano recovers his health on his deathbed: «I was insane and am now sane». This passage of the work of Cervantes also approaches us to the biological therapies of the mental disorders and makes us consider if the author knew more about the psychiatric medical material than he apparently transmits. The physical deterioration of the nobleman from La Mancha in his last days, coinciding with the recovery of his mind is attributed by his doctor to deep melancholies and quartan fevers. The history of psychiatry is full of comments on the relationship existing between febrile pictures and relief of the symptoms of mentally ill patients. But even more, during the first third of the last xx century, the induction of febrile conditions by paludization became a first order therapeutic strategy in the management of psychotic and manic patients. The one who introduced these techniques, Julius Wagner-Jauregg (1857-1940), was even awarded the Nobel Prize of Physiology and Medicine in 1927 for this relevant contribution, called pyretotherapy.

## IN CONCLUSION

Reading *Don Quixote* from the perspective of certain current scientific disciplines may run the risk of becoming a mere speculative approach. In this sense, the medical studies of the brilliant Cervantine work are not an exception. This fact was already perceived by another distinguished representative of Hispanic thinking, Miguel de Unamuno (1864-1936), who, in a criticism of scholars on Cervantism, stated: «Of all those who comment on el Quixote, there are no worse ones than the doctors: they rapidly scrutinize what type of insanity *Don Quixote* had, its etiology, symptoms and even its therapy»<sup>27,46</sup>.

In this sense, the already mentioned Hernández Morejón, in his first approach to the medical study of *Don Quixote*, published in 1836, stated: «the immortal work contained descriptions and interpretations on health and disease, above all mental disease, from which valuable ideas can be revealed by the professionals who have the patience and seriousness necessary for this type of works, not at all easy, and in which there is also the risk of inventing and construction beyond that which is really stated in the pages that they study»<sup>28</sup>. We hope that this has not been the case of this study, as we are co-participants of the opinion of Cajal,

who, in his mentioned speech of 1905, insists on the fact that «we admire the book of Cervantes, but we do not derive its moral towards domains beyond that which the author wanted to say»<sup>3</sup>.

## REFERENCES

1. Cervantes M. *Don Quijote de la Mancha*. Instituto Cervantes, editor. Rico F, director. Barcelona: Grijalbo Mondadori, 1998.
2. Esteva de Sagrera J. La farmacia en el Quijote. *OFFARM* 2005; 24:104-16.
3. Ramón y Cajal S. Psicología de don Quijote y el quijotismo. Discurso (9 de mayo de 1905). Madrid: N. Maya, 1905.
4. López H. La medicina en el Quijote. *Actas Luso Esp Psiquiatr Neurol* 1971;30:35-44.
5. Chiappo L. La última melancolía de Alonso Quijano, el Bueno. *Acta Psiquiatr Psicol Amer Lat* 1994;40:69-76.
6. Peña S. La locura del Quijote. *Rev Méd Chile* 1999;127:89-93.
7. Puerto FJ. La terapéutica y la farmacia durante el Barroco. In: El mito de panacea. Compendio de historia de la terapéutica y de la farmacia. Madrid: Ediciones Doce Calles, 1997; p. 299-382.
8. Montiel L. La medicina de la mente en el periodo moderno. En: López-Muñoz F, Alamo C, editores. Historia de la neuropsicofarmacología. Una nueva aportación a la terapéutica farmacológica de los trastornos del sistema nervioso central. Madrid: Ediciones Eurobook, 1998; p. 39-50.
9. López JM. La medicina en la historia. Madrid: La Esfera de los Libros, 2002.
10. Martín-Araguz A, Bustamante-Martínez C. Examen de ingenios, de Juan Huarte de San Juan, y los albores de la neurobiología de la inteligencia en el Renacimiento español. *Rev Neurol* 2004; 38:1176-1185.
11. Sánchez Granjel L. La medicina española renacentista. Salamanca: Ediciones de la Universidad de Salamanca, 1980.
12. Martín-Araguz A, Bustamante-Martínez C, Fernández-Armayor V. El suco nerveo sabuceano y los orígenes de la neuroquímica en el Renacimiento español. *Rev Neurol* 2003;36:16-30.
13. Barona JL. Sobre medicina y filosofía natural en el Renacimiento. Valencia: Seminari d'Estudis sobre la Ciència/Universitat de València, 1994.
14. Bartolomé A. La analogía, fuente de fármacos tradicionales. *Diario Médico*, 2004.
15. Norton S. Experimental therapeutics in the renaissance. *J Pharmacol Exp Therap* 2003;304:489-92.
16. Barona JL. Las terapéuticas psíquicas en las visiones mecanicistas y espiritualistas. In: Barcia D, editor. Historia de la psicofarmacología. Madrid: You and Us, 1998; p. 237-60.
17. Esteva de Sagrera J. La farmacia a través de la literatura. *OFFARM* 2003;22:94-98.
18. CVC (Centro Virtual Cervantes). Instituto Cervantes (Spain), 2000-2005. <http://cvc.cervantes.es>. Access date 3/8/2005.
19. Salillas R. Un gran inspirador de Cervantes. El doctor Juan Huarte y su «Examen de ingenios». Madrid: Librería de V. Suárez, 1905.
20. Puerto J. La fuerza de Fierabrás. Medicina, ciencia y terapéutica en tiempos del Quijote. Madrid: Editorial Just in Time, 2005.
21. Vilanova A. Erasmo y Cervantes. Barcelona: CSIC, 1949.
22. Castro A. El pensamiento de Cervantes. Madrid: Trotta, 2002.



23. Alonso-Fernández F. *El Quijote y su laberinto vital*. Barcelona: Anthropos, 2005.
24. López A. Molimientos, puñadas y caídas acaecidos en el Quijote. Alcalá de Henares: Editorial de la Universidad de Alcalá, 1996.
25. Gracia D. Discretas locuras. Variaciones en torno al tema de la locura de Don Quijote. In: III y IV centenario de *El Quijote* en la Real Academia Nacional de Medicina. Madrid: Ed. Real Academia Nacional de Medicina, 2005; p. 139-58.
26. Sánchez Grangel L. Lectura médica de *El Quijote*. En: III y IV Centenario de *El Quijote* en la Real Academia Nacional de Medicina. Madrid: Ed. Real Academia Nacional de Medicina, 2005; p. 159-73.
27. Pérez N. Don Quixote's diagnosis: an historical approach, 2003. <http://www.Fictionethics.org/aps/paper/11>. Access date: 18/7/05.
28. Hernández Morejón A. Bellezas de medicina práctica descubiertas en el Ingenioso Hidalgo Don Quijote de La Mancha. Madrid: Imprenta de Tomás Jordán, 1836.
29. Peleg R, Tandener H, Peleg A. The medical Cervantes. *Can Med Assoc J* 2001;165:1623-4.
30. Pi i Molist E. Primores de Don Quijote en el concepto médico-psicológico y consideraciones generales sobre la locura para un nuevo comentario de la inmortal novela. Barcelona: Imprenta Barcelonesa, 1886.
31. Royo Villanova R. La locura de Don Quijote. Discurso de apertura de la Academia Médico Quirúrgica aragonesa 1905. In: III y IV centenario de *El Quijote* en la Real Academia Nacional de Medicina. Madrid: Ed. Real Academia Nacional de Medicina, 2005; p. 75-104.
32. Bénézech M. Don Quichotte de la Manche: manie délirante, paraphrénie fantastique ou psychose passionnelle? *Ann Méd Psychol* 1998;156:331-6.
33. Tabarés-Seisdedos R, Corral-Márquez R. Miguel de Cervantes, 1647-1616. *Am J Psychiatr* 2001;158:1392.
34. Machado C. Análisis psiquiátrico de *Don Quijote*. *El Mundo Magazine*, 17 de abril de 2005. <http://www.elmundo.es/suplementos/magazine/2005/290/1113588827.html>. Access date: 27/7/05.
35. Hasbrouck MD. Posesión demoníaca, locura y exorcismo en el Quijote. *Bull Cervantes Soc Am* 1992;12:117-26.
36. Torrente Ballester G. *El Quijote como juego y otros trabajos críticos*. Barcelona: Destino, 2004.
37. García-Ruiz PJ, Gulliksen L. Did Don Quixote have Lewy body disease? *J Royal Soc Med* 1999;92:200-1.
38. López-Muñoz F, Alamo C. Psicofarmacología: el nacimiento de una nueva disciplina. En: López-Muñoz F, Alamo C, editores. *Historia de la neuropsicofarmacología. Una nueva aportación a la terapéutica farmacológica de los trastornos del sistema nervioso central*. Madrid: Ediciones Eurobook, 1998; p. 191-206.
39. López-Muñoz F, Álamo C, Cuenca E. Historia de la psicofarmacología. En: Vallejo J, Leal C, dirs. *Tratado de psiquiatría*. Tomo II. Barcelona: Ars Medica, 2005; p. 1709-36.
40. González de Pablo A. El tratamiento racional de la patología mental: hipocratismo y galenismo. In: López-Muñoz F, Alamo C, editores. *Historia de la neuropsicofarmacología. Una nueva aportación a la terapéutica farmacológica de los trastornos del sistema nervioso central*. Madrid: Ediciones Eurobook, 1998; p. 23-38.
41. Sauri JJ. *Historia de las ideas psiquiátricas*. Buenos Aires: Ediciones Carlos Lohle, 1969.
42. Postel J, Quérel C. Historia de la psiquiatría. México: Fondo de Cultura Económica, 1987; 116-22.
43. Fraile JR, de Miguel A, Yuste A. El dolor agudo en *El Quijote*. *Rev Esp Anestiol Reanim* 2003;50:346-55.
44. Font Quer P. *Plantas medicinales. El Dioscórides renovado*, 5<sup>th</sup> ed. Barcelona: Ediciones Península, 2003.
45. Ungerer G. George Baker: translator of Aparicio de Zubia's pamphlet on the «Oleum Magistrale». *Med Hist* 1986;30:203-11.
46. Unamuno M. El caballero de la triste figura (ensayo iconológico). Madrid: Ed. Austral, 1970. Artículo original publicado en 1896 y conferencia (La locura de Don Quijote) dictated in Salamanca on April 10, 1905.