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A


DISSERTATION

ON THE

ROOT OF RATANHIA:


CONTAINING

AN ACCOUNT OF ITS GROWTH, MEDICINAL
VIRTUES, &c. &c.



By DON HIPOLITO RUIZ,


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[PRICE 2s.]

ROOT OF RAYANINE

AN ACCOUNT OF ITS GROWTH, MEDICINAL

VIRIDITY, &c.



J. G. BARNARD,
Shinner-street, London.

INTRODUCTION.

THE Rhatany Root was not known in this Country till the year 1808, when Dr. Richard Reece published a Practical Treatise on its Medicinal Properties ; since which, it has been very generally employed as a Tonic Medicine, in Intermittent Fevers, and other cases of Debility. When the London College of Physicians were engaged in a revision of their Pharmacopœia, in the year 1809, many of the Members, who had given the Rhatany Root a trial, were desirous that it should be introduced into their Work ; but it was objected to by the Fellows of the College, because its History was totally unknown to them. It appears, however, by Dr. Ruiz's Dissertation, that it was introduced into the Practice of Physic, at Ma-

drid, so far back as the year 1782 ; and that a long account of it was published in the Memoirs of the College of Physicians of Madrid, an important public Work, of which the College of Physicians were evidently ignorant.

Dr. Reece speaks of the virtues of the Rhatany Root, chiefly as a Tonic Medicine ; but Dr. Ruiz recommends it highly as a remedy for the bloody Flux ; Flooding, and fluor Albus. By the experience of Sir Henry Hallford, Bart. M.D. ; Dr. Ferriar, of Manchester ; Dr. Pearson ; Dr. Cheston ; and others, it is evidently a powerful Tonic Medicine, and in many respects superior to the Peruvian Bark ; for it is not only more agreeable to the Palate and Stomach, but does not disturb the Bowels, when exhibited in full doses. As a Stomachic, it is, assuredly, the most powerful we are acquainted with. On

account of its astringency and beautiful red colour, it has been, from time immemorial, employed by the Ladies of Peru as a dentifrice; for which purpose, it has lately been employed in this Country, by the recommendation of Mr. Hertz, in his Popular Treatise on the Management of the Teeth.

The Extract made in South America, according to the direction of Dr. Ruiz, is an excellent preparation; but by the long boiling necessary to make it in this Country, the virtues of the Root are destroyed. Dr. Reece recommends a preparation* made in the same manner as the essential Salt of Bark, which contains, in a concentrated state, the medicinal virtues of the Root in great perfection, and being soluble in Wine, or readily formed into Pills, is a convenient preparation; but the foreign Extract, when it can be obtained good, is, probably,

* Termed Essential Extract of Rhatany.

in no respect inferior to it. Dr. Reece having first recommended the remedy in this Country, is, of course, desirous that it should maintain its reputation; and the Extract, sold at his Medical Hall, 171, Piccadilly, is the true foreign Preparation.

In Portugal, the Extract of Rhatany has been long used for the purpose of increasing the astringency, and giving fulness to Port Wine; and it appears, that the medicinal virtues of Port Wine, is chiefly derived from it; for Dr. Ferriar observes, that in Low Fevers, he has found the Extract of Rhatany to produce all the salutary effects of Port Wine, without its ill consequences, viz. of disturbing the head, &c.; a circumstance which renders it a most important Remedy in many cases of Debility, where the object is to strengthen the system, without inflaming it.

London, November 6, 1813.

A DISSERTATION, &c.

CHAPTER I.

Of the Ratanhia ; the Provinces where it is cultivated ; its different Names, and the Use which was made of the Root in America.

THE Ratanhia is a plant which belongs to the genus *Krameria*, as described by Linnæus, and in the province of Huanuco : it is known by the said name of Ratanhia, which means a plant extended on the ground. In the province of Tarma it is called Mapato, the signification of which is a bungling plant, some of the most tender branches having leaves and flowers covered with a thick and white down, and those which are without leaves, are of a blackish or dark brown colour. In the said province, it is likewise known by the name of Pumachucu, or Birrete de Leon, perhaps on account of the form of the leaves,

which, before they are opened, are in the form of a cone, or a paper rolled up in the form of one, and after they are expanded, have the appearance of a butterfly, with the largest petal erected, and almost in the form of a grenadier's cap. Finally, in the provinces of Huarocheri, Canta, and Jauxa, some people give it the name of Pumachucu, and more commonly that of Root for the Teeth, by which it is likewise known in Lima. Amongst all those different names, I have preferred that of Ratanhia, since it appears to me to be the fittest and most proper, and better than the others, as likewise, because it is most commonly called so in the province of Huanuco. The Ratanhia is to be found in abundance in the vicinity of the said city, on the highlands of Puelles, and those others which border on it, on the broken uneven soil of Camcham and Higue-ras, as likewise on the highlands which extend from Huanuco as far as Ambo, five leagues distant from that city. It is likewise found from Ambo as far as Huaviaca, a territory belonging to the province of Tarma, in the vicinity of the town of this name, and in the dales of Tarmatamba, on the road from Tarma to Xauxa. Lastly, it is to be found on the broken uneven soil, and on the hills of Canta, towards Abragillo, Huamantanga, Quive, and Yanga, as like-

wise in the provinces of Huarocheri, Caxatambo, and Huamalies. It grows spontaneously on sandy, chalky, dry, and barren soils, which are exposed to the sun at the bottom of low hills. In the year 1779, I found it in the province of Tarma, where I described it and had a drawing taken, and a few days after I met with it on the road from Xauaxa: in the year 1780, I found it in the province of Huarocheri, and in that of 1784, on the hot soil of the province of Canta.

I was ignorant what use they made of this plant in Peru, until the said year 1784, when being on a visit one day in the city of Huanuco, I observed some ladies who were rubbing their teeth with a small piece of red wood, and having asked them what sort of wood it was, and for what purpose they used it, they briefly told me that it was the root of a plant called Ratanhia, and that in Lima it was known by the name of Root for the Teeth, as likewise that they made use of it in order to clean and make fast their teeth, and at the same time to colour their lips. I asked them if it was cultivated in Huanuco, and if they had it in their power to procure me a plant of it, which, a few minutes after, they presented to me in blossom, and I then immediately knew that it was of the same kind of *Krameria Triandra*, which, in the year 1780,

I had found in Huanuco, and in that of 1779, I had discovered, described, and caused to be drawn in Tarma; although, at that time, I did not know it was called Ratanhia, nor the use which was made of it in Huanuco and Lima, where it is sold by the Pulperos people, who keep chandlers' shops, and retail provisions at half a royal of that money for a small handful, and they buy it of the Indians from Canta and Huaro-cheri, who apply themselves to gather medical plants, and bring them from those provinces to Lima on holidays, together with the Calaguala, Quinclumali, Pumysanca, and other different herbs of known use.

CHAPTER II.

Of the Discovery of the Styptic Virtue of the Ratanhia, and of the Method of obtaining the Extract from its Root.

WITH the knowledge I had acquired at Huanuco of the use and application of the Root of Ratanhia, I began to use it in the same manner, as in that city; the natives cleaned their teeth, and observing that it

was possessed of a stypticity superior to any that I had discovered in the vegetable kingdom. Until that time it appeared to me that this quality of the root was worthy of some attention, and that it is worth while to make as many trials as possible, in order to ascertain, with certainty, its power of stopping bloody fluxes, which I imagined it would have, as its excessive styptic taste indicated, which is immediately perceptible on its mastication.

In order to obtain my object, I caused a quantity of the roots to be gathered, which being well washed and cut into small pieces, I steeped them in cold water for one night, and put them to boil on a clear fire until the water was intensely dyed : I separated this first liquor, and putting another quantity of water to them, I let them boil again until I thought no more could be extracted from them ; I then strained those liquors or tinctures through a double baize, and let them evaporate until the extract was of the consistence of liquid honey. In this state I removed the extract which had been formed from the evaporation of both tinctures from the fire ; and having put it into paper boxes, I exposed it to the heat of the sun, which is always very powerful in that city, until it became of a consistence hard and brittle, as that of the juice pressed from aloes, pure,

transparent as a crystal of a very high coloured red, and so much like the real **Dragon's Blood**, in tears in appearance, that it is very easy to mistake one for the other, without the precaution of tasting it before ; in which case it is distinguished from the said resin, by being more fragile, more styptic, and by its bitter taste, without adhering to the teeth when it is masticated ; and being put in the fire, it burns without melting or exhaling any smell of resin that is perceptible.

The astringency of this extract is, to the taste, far superior to that of the roots and extracts of **Tormentil** (*Tormentilla Erecta*) of **Bistort**, (*Polygonum Bistorta*), and to that of many other simple and compound medicines which is used inwardly as styptics.

I have experienced that the **Extract** of the **Ratanhia**, the same as that of **Jesuits' Bark**, is much better, and of a more powerful virtue, when it is obtained from fresh roots, than from dry ones ; because the water extracts from the former the saline matter sooner, without being so long on the fire, which, it is not to be doubted, alters the colour and the other qualities which the herb possesses ; and it is certain, that it requires more time, care, and attention ; as, likewise, that it is more tedious to obtain the **Extract** from dry ones, in order to have it pure, sparkling, of an high coloured red, and trans-

parent. The difference may be seen, by holding a thin piece of the latter to the light, which is not at all transparent, as it happens when it has turned of a brown colour at the time of evaporating ; as likewise, when iron instruments or vessels have been made use of for the coction, because the gallic acid of the *Ratanhia* is immediately combined with this metal, forming an ink proper for writing ; and because, if it be too long a time on the fire, it becomes quite decomposed ; and being afterwards dissolved in water, a reddish powder is separated ; besides, it contains a quantity of carbon acid, and, at times, a good deal of empyreumatic.

In order to obtain the Extract, no more than two coctions must be given to each quantity of roots, in six times as much common water each time ; for if they are boiled oftener they become insipid, and after it is cold, they deposit.

Having evaporated more than the half, a sediment that is neither saline nor styptic, which is sufficient to take away the transparency from the pure extract obtained from the two first coctions, and to lessen the stypticity in each dose, I have likewise experienced, that it is much better to give the due consistency to the Extract, by exposing it to the heat of the sun, or of a stove, than to make use of a still ; and after it has become as

liquid honey, it must be put in broad plates of earthen ware, or in paper boxes.

In order to execute my project of ascertaining the astringent virtue, which I conceived to be very powerful in this root, I sent, as likewise did my companion, Don Joseph Pavou, who had formed the same opinion of it as myself, a sample of the Extract of Ratanhia to Dr. Don Cosme Bueno, physician and cosmographer to Peru, in order that he might experience its effects, and the degree of its stypticity. And although we were informed it had reached his hands, we did not hear that he had made any trials with it and what had resulted from them; but before we departed from Huanuco for Lima, the following case occurred in that city :

The son of a silversmith, whose name was Mego, a boy of about ten or twelve years of age, was taken with such a copious flux of blood at the mouth and nose, as to leave him entirely prostrated, and without being able to sit up in bed. The Surgeon, Don Narciso Bracamonte, had administered those medicines, which, in such cases, are generally employed by the best physicians, without being able to stop the flux. On the second day, as I accidentally went into his father's shop, who was very much afflicted, he related the case to me, and asked me if

amongst my discoveries, I had not found some remedy powerful enough to stop a flux of blood, which had entirely debilitated his son; and he was afraid of the consequences which might result from the repeated vomits that attacked him, frequently with the greatest violence. I comforted the said silversmith, Mego, telling him that I had obtained an extract from the root of *Ratanhia*, which, being administered to his son, might perhaps stop the flux; but in order to give it him, it was necessary that I should first of all see the physician who attended him. A few moments after I had got home, the before-mentioned Bracamonte came to my house, being sent by the said silversmith, in order that he might taste the extract, and see if it was proper or not to give it to his son. Don Narciso Bracamonte, after having tasted the extract, and observed, like myself, a superior stypticity in it, determined to administer to the patient a drachm dissolved in two ounces of water with a few drops of acid or distilled vinegar; and without being under the necessity of using any more, he succeeded in stopping the flux; and on the third day the boy was quite well and able to go out.

This same surgeon, astonished at the quick and wonderful effects of the extract, requested me to give him a small quantity of it, for the purpose of making new experi-

ments, and convincing us more and more of its styptic virtue. At that time, there was in the said city of Huanuco a female slave, belonging to a tradesman, whose name was **Don Basilio Medrano** ; she was dangerously ill, and without hopes of recovering her health, which she had lost about two years ago, in consequence of an almost continual flow of the menses ; she had a slight fever, and her weakness was such, that in order to move from one place to another, it was necessary to have the assistance of another person. She was much emaciated, without any appetite, and, in short, entirely debilitated. The before-mentioned **Bracamonte**, who attended this sick woman, entirely given over by the other physicians, who, like himself, had administered to her all the remedies which they thought proper for effecting a cure, being encouraged by the effect which the Extract of the *Ratanhia* had caused on the son of Mego, he determined to give the same dose to the slave as he had done to the boy ; and having succeeded with the first portion, to stop the little blood which flowed, he gave her, on the third day, only half a dose ; on the fifth, the sick woman felt herself something better, and with a little appetite ; on the sixth, he gave her another half drachm ; and in nine days the slave was able to go out leaning upon a

stick. In a month's time she found herself entirely free from the fever, with an appetite for any sort of aliments ; and so well, that she went out and sold sweatmeats about the streets on holidays, continuing in this state without any change, and every time better. Two months after this cure, I departed, with my companions, from Huanuco for Lima, in order to return to Spain. And being on a visit to Doctor Don Cosme Bueno, he related to me, that his daughter was very much debilitated, on account of a copious flow of the menses, which had continued eight days ; and that he was very much afflicted, because he could not succeed in stopping it with the juice of Nettles, with Opium, nor with several other medicines which he administered to her. I related to this famous physician, the effects which the Extract of Ratanhia had produced in the two before-mentioned cases ; and without any delay, he ordered that the same dose of the said Extract should be administered to his daughter ; and without having need of a second potion, the flux was suspended. On the following day, the patient got up ; and on the fourth, she went out quite well and strong ; and since then, has not had the least alteration in her health.

On the 26th of May, 1794, Father Francis Gonzalez Laguna wrote to me from Lima, informing me of the wonderful effects

the Extract which I had left him in two small flasks, had had in that city; and he adds, that a nun, sister to M. Gallos, who had been in great danger, on account of a continual and obstinate flux, had been cured with this Extract. And lastly, he acquaints me that a Mulatto, who lived with Dr. Don Cosme Bueno, was recovering from a very bad state of health, by means of the Extract, without any other remedy whatsoever. After my return to Spain, the Extract of Ratanhia has been administered at Madrid, and even in other parts, by the Physicians, Don Ignacia Ruiz de Luzuriaga, Don Ginés Lario, Don Juan Naval, Don Manuel Casal, Don Joseph Lopez, and others, to whom I related its styptic and tonic virtues, and the wonderful effects which had been experienced in the before-mentioned cases; and on every occasion that those Physicians have made use of it, they have found that it produced the same effects as it had done in Peru.

After this report had been published in the first volume of those of the Royal Medical College, at Madrid, the before-mentioned Physicians have continued to make use of the Extract of the Ratanhia; and, besides them, Messrs. Don Juan Luque, Don Antonio Soldevilla, Don Thomas Tura, Don Francis Anto. Zunzunegui, Don Pedro Her-

nandez, Don Juan Manuel Perez de Santa Cruz, Don Frederico de la Oliva, Don Jose Ortega de Tamayo, Don Antonio Barbajosa, Don Pedro de las Heras, and several others, as well this city as of the provinces. Besides the use which has been made of the Extract of Ratanhia in this capital to stop the menstrual fluxes of blood, and others originating from different causes, it has been given, likewise, to detain the lochias, and to stop the blood in recent wounds.

On account of this astringent virtue, it may be of great use in the hospitals of the army to heal ulcers in the mouth, and those of the gums, and to make fast the teeth.

The Extract of Ratanhia has produced the same effects in discharge of blood by the passage of the urine as in those of others.

In all those cases in which this Extract has been employed, it has always produced the greatest effects without being exposed to the inconveniencies resulting from the use of other astringents, and thus I consider it as very useful, and even necessary and worthy to be admitted in the number of medicines as a styptic, perhaps the most innocent, the most powerful, and the most efficacious, which, until now has been discovered in the vegetable kingdom.

CHAPTER III.

Of the Virtue of the Root of Ratanhia, and of the Extract ; of its Dose and Way of using it.

IN every age of the world, mankind has endeavoured to investigate the use and virtues as well of plants and their parts, as likewise of other natural productions, for the alleviation of their disorders. Barbarous nations and uncivilized people have, as Brunn says, certainly contributed to the advancement of physic. Chemists and physicians have put their whole attention to the realizing and advancing the discoveries which have been made by those nations, and by people very little, or not at all civilized, investigating the constituent parts of which plants are composed—preparing and combining them, in order to make use of them with safety and advantage. Very few are the Professors of Physic who have applied themselves to the discovery of the virtues of any natural production ; but many, those who have propagated them, and extended their use after they have been discovered.

The virtues and use of the Root of Ratanhia must be placed in the number of those

first discoveries made by barbarous nations and uncivilized people ; for the Indians of Peru, from time immemorial, made use of this Root as a remedy for preserving the teeth, having it continually in their mouth whenever they found them loose, or had sore gums. The use of it was afterwards extended amongst the Spanish Creoles, and especially amongst the fair sex, who, having been in the habit of cleaning their teeth with the Root of the Pichana (a species of the Genus *Sida*, which, although soft and very proper to clean or to take away the foulness of them, has, by nature, the quality of softening the gums and loosening the teeth), were at last obliged, on this account, to have recourse to the Root of the Ratanhia, in order to secure or make them fast ; besides this virtue, it possesses, likewise, that of colouring the lips and keeping them of a rose colour all the day long, if it is masticated in the morning and held some time in the mouth.

This effect and quality were well-known to the fair sex in Peru ; but they were ignorant of the other virtues, qualities, and uses which this precious root is possessed of.

As I have already mentioned, in the second chapter, I observed in this root, the first time I masticated it, a styptic virtue far superior to that of all the vegetable substances which I had tasted until then ; and

to judge by its red colour, I likewise conjectured, that some advantage might be had from it in the art of dying. To realize in some manner this quality, I put some cotton clothes into a coction of Ratanhia, having steeped them before in a lie of alum, and after having boiled some time, they were dyed of a permanent red colour; for although they were washed several times afterwards, it never changed.

Lastly, it has been experienced, that the Extract of Ratanhia, mixed with resins and applied on a piece of linen, is a most powerful restrictive to strengthen the relaxed parts, and to heal ulcers which have been cleansed*; and the powder of it being applied to recent wounds, it very soon stops the blood†, administered in euxugations gargles, it is an admirable remedy to cure a sore mouth and to strengthen the gums; and held alone in the mouth, it has, as may be presumed, more power to secure or make fast the teeth, than when it is diluted in water.

* The Extract of Ratanhia, put on a piece of linen, according to the receipt given in this dissertation, and applied to ruptures, has had a good effect on several occasions, when it has been made use of by Dr. Don Eusebia Bueno and other surgeons.

† If after having drawn one or more teeth, there should be a discharge of blood, and a powder of

To judge by the effects which have been seen in the use of the Extract of Ratanhia, it may be inferred, that it works upon the sanguinary vessels and relaxed parts. It has been observed, by two physicians, that, in four cases in which the Extract had been administered to stop the flux of blood, it had likewise eased the pain. Nevertheless, both of them told me that they had need of a greater number of cases, in order to realize this virtue, because the pains which the patients felt, might have proceeded from the the flux, and this being stopped, they might cease.

This extract may be used in all the cases in which Dragon's Blood is prescribed, and, it is certain, that it operates with more efficacy and power than this resin, which, in general, is seldom to be had pure; as it has been observed, that several kinds of it come to Europe, which have certainly been gathered from plants different from one another. Instead of the Calamus Rotang, Linn. Spec. plant, 463, which ought to be made use of, a kind of Croton which abounds in the woods and in hot and low places near the villages of

the Extract of Ratanhia be put in the hole, pressing it down a little, the blood is immediately stopped; and with the same facility, it closes the incisions made by bleeding, and those by leeches.

Pozuzo, Muna, Chactla, and others, near the mountains of the Andes; and other plants which are still unknown in botany, have been employed. It is likewise known, that many of the merchants and druggists counterfeit it to the prejudice of human health. For these reasons, and because it is not of a resinous nature, as likewise being somewhat bitter, like the Jesuits' Bark, from whence it may be inferred to be more or less stomachic, tonic, and antiseptic, it is to be preferred to Dragon's Blood or to any other gum or resinous substance, when there is a necessity of using inwardly a styptic medicine.

The root, or saturated tincture of the Ratanhia is likewise much better for cleaning and securing the teeth, than those small sticks covered over with Dragon's Blood, which are made use of; or the Roots of Liquorice, Malvavisco, and others of the same kind, especially when they are not prepared, which some make use of to take away the foulness of the teeth, for those loosen them; and on the other hand, the Root of the Ratanhia secures and fortifies them.

The most general method which physicians have observed in administering this Extract to stop bloody fluxes, has been to dissolve it in rose water, or common water; and to add to each portion, from ten to twenty drops of acid Elixir of Vitriol, or distilled vinegar.

The regular dose of the Extract, for children of 12 years of age, is from one to two scruples ; and for those grown up, from half a drachm to a whole one. The quantity of water for each portion is arbitrary ; and Physicians are accustomed to vary it as they think proper. It has been experienced, that, in some patients, the flux has been stopped with the first portion ; in others, with the second—and few have been those who have needed more than the third.

Notwithstanding some physicians, in order to make themselves more certain of the cure, have continued after the flux had ceased, in administering to their patients some more portions, and they have observed this, especially with those people, who, besides having a flux, are at the same time troubled with a cough.

It has been experienced, that in order to stop the flux in a short time, it is necessary to take one drachm in each portion, which is given at the beginning, because a less quantity does not produce the same effect so soon as is wished, although it be often repeated. After the blood is stopped, it is enough, in order to cure the sick person, if he takes two drachms of the Extract on the first two mornings, and on the following, to go on diminishing the dose until the physician thinks proper that he may leave it off. Some patients

have taken for many days a fourth part of the dose, thinking in this manner to make themselves more certain of the cure. No person has ever experienced any bad consequences by making use of the Extract for some time, and one of the most convincing proofs of this, is that after having been *cured of a flux of blood at the mouth*, which the Marquis de San Simon made of it for four months, which he had in consequence of the shots he received in the war, being assisted by Dr. Don Ignacio Ruiz de Luzuiaga.

If the flux is continual and abundant, three drachms of the Extract may be given to patients in the course of the day, as it has sometimes been done, and in this manner the most obstinate flux has been detained.

Hitherto few have been those who have made use of the coction and infusion of the root of Ratanhia, for the purposes which have been expressed of stopping blood fluxes ; but those that have done it have experienced the same good effects, as they have made use of the Extract by putting two drachms of the root to boil for each portion. I have experienced that a fourth part of the substance of the root is dissolved in the water, from whence it results that they who have made use of the coction, have taken half a drachm of the extract in each portion. According to

this account, the medicine may be taken either in coction, infusion, or extract, provided that there be the same quantity of extractive matter in each dose.

In order to administer the extract of Ratanhia to people who are subject to vomit, physicians have the means of giving it in pills with a little water, for in this manner the taste is not perceptible, and it produces the same effect. Instead of the extract, physicians may give two drachms of the powder of the outside covering of the root, in the certainty that they will have the same effect as one drachm of the extract, because two drachms of the former contain one of the latter.

If at any time the extract has not produced the effect of stopping the flux, it must probably be attributed to the circumstance of not having given it in the quantity of a drachm, and to the want of practice in the physician who had administered it; for there are more than eight hundred cases in which this specific has effected wonderful cures, and amongst those, are public and notorious at Madrid, those of Messrs. Marquis de San Simon, Don Fernando Atayde y Portugal, Don Joze Ruiz de Santagna, Don Matias Himener y Armona, Don Matias Herrera, Don Antonia Perery Valdes, Don Joachin Morales, Don Antonia Diaz, &c. &c. &c.

CHAPTER IV.

Of the Properties and Constituent Parts of the Root of the Ratanhia ; and of the uses it has been put to, and might be put to with advantage.

THE root of the Ratanhia is divided into several small branches, from one quarter to a vara in length, round, here and there twisted, and of the thickness of half an inch, little more or less ; it consists of the inward woody part, of a colour inclining to white, and of the outward covering, which is reddish, thick, and has a scarf-skin, that is blackish and cracked. No other smell is observed in it, than that of a vapour arising from the earth which is not disagreeable, and is more perceptible at the time of boiling it. The taste is very rough, styptic, and somewhat bitter. Being infused or boiled in common water, it yields a tincture of a very high coloured red, which unites with an alkali ; and with green vitriol, it acquires a black colour which may very well serve instead of ink to write with, and that indicates there is in this root a great quantity of acid of galls, or astringent part. The

infusion and coction being left alone for a time, a dark powder is precipitated, which is indissoluble in Alcohol. Having tried it with highly rectified spirit of wine, it did not shew the least sign of being of a resinous nature.

The decoction and the extract diluted in water, and being well agitated, form abundance of froth like soap.

BEVERAGE OF RATANHIA FOR BLOOD FLUXES.

*Take of Root of Ratanhia, half an ounce ;
of Common Water, two pounds.*

Let it boil until there remains only half a pound, and having strained it, add of vinegar, two drachms ; if you wish to sweeten it, add of sugar, half an ounce.

In urgent cases, this dose may be given at one time ; but if the case is not very urgent, it may be divided into two or three portions, as has been practised by those physicians who have made use of this beverage to stop blood fluxes.

That patients who use this medicine, do not take at once so much, physicians may make use of the following

BEVERAGE OF THE EXTRACT OF RATANHIA.

Take of the *Extract of Ratanhia pulverized*, one drachm ; of *Glauber Salt*, one ounce : let it be dissolved by a slow fire, and add of *common vinegar*, one drachm.

This beverage is that which generally has been made use of by many physicians, and that has produced more speedy effects, if taken at once, at the beginning of the flux, or of the cure undertaken by them.

PILLS OF THE EXTRACT OF RATANHIA.

Take of the *Extract of Ratanhia*, one drachm ; form pills of it, moistening them with a sufficient quantity of *common water*.

This quantity produces the same effects as the foregoing beverage.

POWDER OF THE ROOT OF RATANHIA.

Take the *Roots of Ratanhia*, which are very dry, and break or bruize them that the outside covering may come off, and separate them from the woody part, which must be thrown away as useless, then reduce them to fine powder ; three drachms of these will be sufficient for each portion, which is the quantity equivalent to one drachm of the *Extract well made*.

TINCTURE OR ESSENCE OF RATANHIA.

Take of the *Extract of Ratanhia* half an ounce ; of *Brandy*, four ounces ; of *distilled Vinegar*, eight ounces : put it into a vessel for three days, which has a narrow neck, and in a still, that the *Extract* may be dissolved ; it must be kept for use in a vessel well closed up.

This essence is excellent to correct the beginning of the scurvy, to cure sore gums, and to secure the teeth, if a little of it be taken in the mouth sometimes in the course of the day.

SIMPLE GARGLE OF RATANHIA.

Take of the *Extract of Ratanhia*, four drachms ; of *Water*, half a pint ; of *common Vinegar*, two ounces : dissolve the *Extract* in the *Water* over a gentle fire, and then add the *Vinegar*.

This Gargle may be made use of, by taking a draught of it in the mouth, and changing it from time to time.

It is good for securing and making fast the teeth, for taking away or mitigating the pain of them, and for curing a sore mouth, as it has been already experienced.

Take of the *Extract of Ratanhia*, half an ounce ; of *Vinegar*, four ounces ; of *Water*, two pints ; dissolve the *Extract* in the *Water* by means of a gentle heat, and then add the *Vinegar*.

It has been experienced, that this is not only good for securing the teeth and healing a sore mouth, but likewise for correcting the scurvy at the beginning of it.

If it is wished to keep the gargle of *Ratanhia* for a long time, distilled water, instead of common, must be made use of.

DENTRIFICE POWDERS OF RATANHIA.

Take of the *outside covering of the Root*, six ounces ; of *Xibia*, ten ounces ; of *Cream of Tartar*, half an ounce ; of *Orris Root*, half an ounce.

Let those be pulverized very fine, and well mixed together ; keep them to clean and secure the teeth.

Of this mixture, by moistening it, and adding a sufficient quantity of sugar which is clarified, may be made an opiate that will serve for the same purposes.

PLASTER RATANHIA.

Take of the *Extract of Ratanhia*, four ounces ; of *Frankincense*, four ounces ;

of Galbanum, two ounces; of Roborant Plaster, six ounces; of Turpentine, two ounces and a half; of Oil, two ounces.

Let the resins and the plaster be melted together with the oil, at a slow fire; and afterward the extract must be mixed with them, being pulverized very fine: then form sticks of plaster of it in rolls for use.

This plaster being spread upon linen, and applied to ruptures and relaxations, has produced wonderful effects; and is very powerful in strengthening the hips.

ASTRINGENT UNCTION OF RATANHIA.

Take of the *Extract of Ratanhia, three ounces; of Litharge, two ounces; of Purified Alum, half an ounce.*

Pulverize them very fine, and being well mixed, put them to the following unction: for the composing of which you must

Take of *Rose Oil, one pound and a half; of Turpentine, two ounces; of Wax, three ounces.*

Being made liquid on a slow fire, the before-mentioned powder must be mixed with them, agitating the whole continually until it is cold, and the unction be formed.

It has been experienced, that this unction is very powerful in diminishing the lochia, and in curing the piles.

For the recipe of the dentrifice powders you may take three ounces of the extract, instead of the six ounces prescribed of the outside covering of the roots; because, in this quantity of the latter, there is three ounces of the extract, and the entire roots that is with the woody part only, yield one-fourth part when extracted. The spirit of wine, when cold, dissolves a great deal more than distilled water, and vinegar less than this. All those liquors, when they are hot, dissolve a much greater quantity of extract than when they are cold. Hot water, which dissolves it very well, on account of its being simple, and generally more innocent than the others, ought to be preferred for this medicine, and because it has been observed, that in general it operates sooner than when it has been diluted in cold water, whether it be distilled or not.

Although physicians generally prescribe the use of milk for those who discharge blood at the mouth, in order to correct the acrimony of it and to nourish them with this aliment, yet those who have taken the Ratanhia, find another benefit from it, which is, that it is good when there is a sore throat attended with hoarseness, which may likewise be cured with the use of milch, as Don Josef Ortega de Tamayo and other physicians have observed.

FOR AGUE AND EPILEPTIC FITS.

Take of *Ratanhia Powder*, one ounce ;
divide into sixteen equal parts ; one to be
taken every two or three hours, in Mint or
Rosemary Tea : or,

Take of *Ratanhia Powder*, one ounce ; *Gin-*
ger Powder, one drachm ; *Conserve of*
Orange Peel, one ounce. *Mix, and with*
simple Syrup form into an Electuary. A
tea-spoonful, or the size of a large nutmeg,
to be taken every hour in the absence of the
hot fit of ague : or,

Take of *Ratanhia Powder*, and the *Aroma-*
tic Tincture of Ratanhia, of each six
drachms ; pure Water, seven ounces.
Mix. Three large table-spoonfuls to be
taken every three hours.

FOR INDIGESTION, FLATULENCE, FLUOR
ALBUS, GLEET, BARRENNESS, HABITUAL
ULCERS, &c.

Take of *Extract of Ratanhia Root*, one
drachm and a half ; Vitriolated Mag-
nesia, two drachms ; *Tincture of Ra-*
tanhia, half an ounce ; *pure Water*,
seven ounces. Mix. Two or three table-
spoonfuls to be taken every four hours.

This is a very excellent mixture for the
 diseases specified above. If the patient be
 affected with looseness, the vitriolated mag-

nesia should be omitted; or, in case of heart-burn, scrophula, or gout, two drachms of the prepared natron may be substituted for it.

If the patient prefers pills, the following form will prove not less efficacious.

Take of *Extract of Ratanhia*, one drachm and a half; *dried Natron*, half a drachm; *Oil of Caraway Seeds*, fifteen drops. *Mix, and with simple Syrup make a mass. To be divided into thirty pills, two of which may be taken three times a day, or three twice a day.*

FOR DROPSY.

Take of *Extract of Ratanhia*, two drachms; *Tincture of Squills*, one drachm; *Sweet Spirit of Nitre*, and *Compound Spirit of Ammonia*, of each two drachms; *Aromatic Tincture of Ratanhia*, half an ounce; *pure Water*, seven ounces. *Mix. Three table-spoonfuls to be taken three or four times a day.*

In dropsical affections, either of the chest, belly, or extremities, this is a most efficacious remedy. By strengthening the system, and increasing the secretion of urine, it has proved successful in several deplorable cases.

FOR DIABETES.

Take of *Extract of Ratanhia Root*, one drachm; *Nitre Acid*, three drachms;

Aromatic Tincture of Ratanhia, half an ounce ; pure Water, seven ounces. Mix. Two or three large spoonfuls to be taken three or four times a day,

FOR HABITUAL LOOSENESS, OR CHRONIC DYSENTERY.

Take of Extract of Ratanhia, one drachm and a half ; Aromatic Tincture of Ratanhia, six drachms ; Lime Water, seven ounces. Mix. From two to three table-spoonfuls to be taken every four hours.

FOR IRRITABILITY OF THE NERVOUS SYSTEM, NERVOUS HEAD-ACH, HYPOCHONDRIACAL CASES, ST. VITUS'S DANCE, &c.

Take of Extract of Ratanhia, one drachm and a half ; Camphorated Julep, six ounces ; Compound Spirit of Ammonia, two drachms. Mix. Two or three table-spoonfuls to be taken three times a day.

This is an admirable mixture for allaying morbid irritability of the nerves.

CHAPTER V.

Description of the Ratanhia, or Krameria Triandra.

IT is a plant with many branches. The root is horizontal, almost one vara, very

branchy, round, here and there twisted, of the thickness of half an inch at the most, inclining to a dark brown colour, rough and cracked on the outside, and red in the inside.

The stalk is extended round, and full of branches.

The branches are wide and open, and the one in the centre alone is straight; they are from two to three feet in length round; the most tender of them have leaves; they are covered with down, soft as velvet, and of a white colour; the others have no leaves, and are of a dark brown colour at the bottom.

The leaves are separated, stretched out, and sharp pointed, quite entire, and covered on the outside with a soft down like velvet, and of a white colour.

The flowers are solitary, with two small leaves, which meet together pointed at the extremity of each. It has no Calyx. It has a small rose of four petals stretched out, disposed almost in the figure of a butterfly, the two side ones extended, the largest redoubled, and the inferior one hollow and somewhat larger than the other; all of them inwardly have but little hair, brilliant, and of the colour of gum-lac: on the outside they are covered with a down like velvet. The stamina has three filaments, round; between the germ and the small leaves, they are arched in the inside.

The Pistil is downy, and pointed like an awl.

The Pericarpio is a plum of the size of a strawberry, dry, globular, downy, and contains one seed; it has several small thorns of a dark red colour behind like fish-hooks.

The seed is a globular nut, almost in the form of a small almond, round, and with a sharp point, which represents the figure of a chick-pea.

Observation.—As it is unknown to me, that hitherto there have been any more kinds of this plant discovered than the *Krameria Ixina* de Loeffling, Iter 195, and the *Krameria Triandra*, and the *Pentapetala* of Peru and Chili, it appears to me to be necessary to place here the following, which is observed in these three kinds as worthy of the attention of Botanists.

1st. In the *Krameria Ixina*, Loeffling describes four stamina, four petals, and two small leaves, superior and inferior. This botanist calls the superior, that which is found in the receptacle between the superior petal and the germ; and the inferior, those two small side leaves which are inserted between the inferior petals and the germ.

2d. In our *Krameria Triandra* are constantly to be found three stamina, without in the least, observing any sign of the fourth, which it ought to have in order to be like the other two kinds; it has four petals, which represent the figure of a small rose like a butterfly, and four small leaves; the two superior

ones entirely whole, and the two side, much less, orbicular and convex.

3d. In the *Krameria Pentapetala* is to be found four stamina, five petals, and three small leaves; the two side ones orbicular, and like those of the *Krameria Triandra*.

In case these two last should be discovered by distinct persons, who had no idea or knowledge of the first, it may be inferred, that, from the anomaly here expressed, they would from other two kinds if they would proceed lightly, and only look to the number of the stamina, petals, and small leaves, and would abandon the other parts of fructification; the situation of them and habit, which, although alone is not sufficient, yet still many times at the first view, it manifests the species which are of the same plant.

In the first and third chapter the soil has been mentioned in which this root is cultivated, the provinces in which I have found it, the time in which it blossoms, and the names by which it is known in Peru.