

HOMOEOPATHIC PHARMACY- John Morgan M.R.Pharm.S (Helios Pharmacy)

History

After his discovery of the similitum principle in 1790 it took some time for Hahnemann to develop the potentisation methods now used for remedy preparation. For many years he used crude powder or tincture doses of existing medicines e.g. Belladonna, Nux Vomica, Mercury salts etc, prescribing them according to the law of similars. The results were impressive although toxic side effects must have accompanied some cases even in the small material doses i.e. drops, grains. It is not documented what lead Hahnemann to his dilution and succussion (shaking) methods, or why he chose a 1 in 100 dilution factor in an era of the apothecary system of weights and measures, but it is obvious that diminution of dose to reduce side-effects was a factor. With both organic and inorganic substances used as medicines two main avenues of preparation were developed. i.e. alcoholic tincture (mother tinctures) for vegetable materials and trituration with lactose for insoluble elements and salts e.g Aurum Metallicum (gold metal), Arsenicum Album, Mercury Vivus (mercury metal).

Sources of Remedies

The sources of inorganic remedies are mainly from the pure form and analytical reagents are commonly used these days. However there are some notable exceptions where more natural materials are used as starting materials and hence contain some degree of natural impurity namely, Calcium Carbonate (from oyster shells), Hepar Sulph (flowers of sulphur and oyster shells) Causticum (marble), Silica (powdered quartz). Thankfully most pharmacopoeias still recognise these old formulations but the pressure for complete analysis of starting materials makes licensing of some of these products a challenging prospect.

Some plant remedies are traditionally triturated also e.g. Lycopodium spores. Also liquids such as Petroleum. Snake venoms such as Lachesis, Naja and Vipera are also prepared using the method below.

Trituration procedure

Trituration is the solid equivalent of liquid dilution and succussion using lactose as the inert solid diluent. The original method detailing this method is best described in *Materi Medica Pura* under Arsenicum. The original text is as follows:

"In order to prepare this dose, one grain of white arsenic reduced to powder, is rubbed up with 33 grains of powdered milk-sugar in a porcelain mortar (unglazed) with an unglazed pestle for 6 minutes, and the triturated contents of the mortar is scraped for 4 minutes with a porcelain spatula, then rubbed a second time, without any addition to it for 6 minutes. and again scraped for 4 minutes. To this 33 grains of milk-sugar are now added, triturated for 6 minutes and after another 4 minutes of scraping, 6 minutes of triturating and again 4 minutes of scraping, the last 33 grains of milk sugar are added, triturated for 6 minutes, scraped for 4 minutes and again triturated for 6 minutes, whereby, after a last scraping, a powder is produced which, in every grain, contains 1/100th of a grain of uniformly potentised arsenic. A grain of this powder, is in a similar way with 33 grains of fresh milk sugar, in one hour (36 minutes of triturating, 24 minutes of scraping) brought into the state of potentised pulverulent attenuation, one hundred times more diluted. Of this one grain (containing 1/10,000 the of a grain of arsenic) is rubbed up for a third hour in a similar manner with 99 grains of milk sugar: This represents an arsenic dilution of one part in a million. One grain of this is dissolved in 100 drops of diluted alcohol (in the proportion of equal parts of water and alcohol) and shaken with two succussions of the arm (the vial being held in the hand). This gives a solution which diluted by means of 26 more phials (always one drop from the previous phial added to 99 drops of alcohol of the next phial, and then succussed twice, before taking one drop of this and dropping it into the next phial, furnishes the required decillionth (30th) potency."

This meticulous mixing process is still followed today although most modern pharmacopoeias do not specify the metric equivalent of one grain (60mg) and leave the manufacturer to simply follow the ratios. However one grain was chosen, and is preferable, because it is the smallest weight which could be accurately weighed by a beam balance and

offered the maximum shearing force on the original substance. The first 1:100 dilution is known as potency 1c or sometimes written 1cH (centesimal Hahemann), the second 2c, the third 3c and so on according to the number of serial dilutions. The change from solid dilution at the 3c into 100 drops of 50% ethanol created the 4c and subsequent dilutions are prepared in a liquid medium (traditionally 89% ethanol) by continued serial dilution and succussion. Today the ethanol for this attenuation process is known as dispensing alcohol and is officially not less than 70% v/v.

Question: Why doesn't the lactose or the impurities in the diluents get potentised?

Answer: Because they are never diluted and are always present as a background constant.

Discoveries revealed by trituration

The above process led to the discovery of what is called 'potency' and the reality that there is a power to stimulate and cure symptoms in materially weak concentrations subjected to this treatment. Potency is the result of dilution and a kinetic succussion, for liquids, or trituration, for solids. Hahnemann must have tried various dilutions of poisonous powders and been amazed when the 3c (1 part in 1,000,000) had an effect. There are not many medicines which have a pharmacological influence in a dose of that size. So it was quite a revelation to see patients influenced beneficially by doses of 3c and above. Secondly dissolving the 3c to make the 4c in liquid form showed Hahnemann that very insoluble substances, such as Aurum (gold), Ferrum (iron) were made soluble by trituration because they still acted at higher liquid dilutions. In the light of modern science trituration reduces the particle size down to the region of colloidal solutions thankfully obviating the need for prolonged lengthy triturations for 4c and above. The third discovery for Hahnemann was that inert substances, such as Nat Mur (salt) Carbo Veg (charcoal) which have very little symptom producing power in crude doses, developed dynamic powers to create symptoms by trituration. This was verified when the remedy was given, in potency, to healthy volunteers (mainly Hahnemann's students) who produced the wide range of pathological symptoms which are recorded in materia medica. These tests on healthy subjects are still carried out today and are known as 'provings'.

Question: Yellow phosphorus is highly reactive on exposure to air yet the remedy is prepared by trituration. What simple modification to the above procedure could ensure a safe grinding?

Answer: Purified water is added, during grinding, to ensure the phosphorus doesn't ignite.

Tincture making methods for vegetable remedies.

Alcoholic extractions in medicine and herbalism has been used for many centuries and is the starting point for homoeopathic vegetable remedy sources. Plant constituents are either water or alcohol soluble and the formulations for homoeopathic tinctures ensure that as much active material, from the plant, as possible is brought into solution and preserved.

Sources of plant remedies

The choice of the part of the plant used for tincture is dependant on the location of the active constituents. The majority of remedies use the whole fresh plant i.e. root, stem, leaf, and flower where the medicinal constituents are found throughout the plant. Examples are Aconite, Arnica, Belladonna, Hypericum.

Time of collection

With plant material quality control is always variable and ideal conditions are not always present, however pharmacopoeias give some guidelines for optimum quality during growth, collection and processing.

Organic soil conditions are preferable, to be free from contamination of pesticides, and the natural habitat is better than a cultivated one if it can be guaranteed free from agricultural influences. e.g. Arnica grown at altitude will be of better quality than if grown at sea level,

however the quantity of plant used for commonly used tinctures means that herb growers are mostly used for plant sources.

Many plants have specific parts which concentrate their medicinal content. Examples are as follows:

a. Whole Plants

i.e. leaf, stem, root, flower.

Organically grown conditions. Collected at the beginning of the flowering season. (After three days of sunshine in the morning after the dew has dried)

e.g. Arnica, Belladonna, Hypericum and the majority of remedies

b. Parts

Roots - collection - Annuals in early autumn, biennials in the spring.

e.g. Chelidonium majus, Gelsemium, Bryonia, Symphytum

Leaves - collected when fully developed shortly before the flowering season

e.g. Tabacum, Rhus Tox, Digitalis

Flowers - collected at the beginning of opening during the flowering season

e.g. Calendula, Crocus (stigma)

Fruits - collected at the time of ripening

e.g. Aesculus (Horse Chestnut). Coffea, Crataegus (Hawthorn Berries)

Seeds - collected at the time of ripening

e.g. Nux Vomica, Staphisagria, Ignatia

Bulbs - collected in autumn when the main plant has died down

e.g. Allium Cepa (onion), Allium Sativa (Garlic)

Barks - collected at the time of development of the leaves and blossoms. Non-resinous barks in late autumn.

e.g. Chinchona, Hamamelis, Berberis

Resins - collected at the time of ripening e.g. Opium

Remedy Preparation is often mimicry of the original method for the proving.

Inspection and processing after collection

As homoeopathic tinctures use the fresh plant material they should be processed as quickly as possible after collection. They are inspected and freed from insects or dead material, should be free from moulds, abnormal odour or discoloration, and only the roots should be washed. It preferable not to wash the plant or add water due to the formulation being so dependant on the plant's water content. If there is a delay in processing the refrigeration is recommended. Dried plants should only be used if the monograph specifically states this e.g. Rubarb root, Lycopodium spores, Sepia (cuttlefish) ink powder. The plant is chopped up, very finely, and put into a clean glass vessel and the pulp is weighed ready for alcohol addition as described below.

It should be remembered that remedy sources in general should not only follow procedures to ensure quality but should copy and mimic the original preparation of the remedy which was originally proved. Sometimes this is difficult as some remedy sources are difficult to find these days. e.g. Skookum Chuck is a remedy derived from a mineral lake in Washington state in the US and is thought to have dried up since the first remedy was prepared over a 100 years ago. Also Lac Caninum, a remedy made from bitches milk has no documentation as to the species of the dog originally used.

Mother Tincture Formulation

There has been much evolution, over the years, regarding the way tinctures are made. Hahnemann's remedy chest had not more than 100 remedies of which about half were from plant origin. His formulas were divided into four classes depending on how juicy the plant was and are described in unit 2.

Since Hahnemann's day many hundreds of new plants have been added to the Materia Medica and the use of these old classes became impractical.

Hahnemann's Tincture Methods and the German Homoeopathic Pharmacopoeia

The details for potentiating plant material begins with the mother tincture. Hahnemann used four different methods, in the monographs of his Materia Medica Pura, **because of differences in the water content of plants**. Plant material varies in water content with different species and even different batches.

One part of drug strength was based on the watery juice present in the fresh plant.

METHOD 1

The fresh plant is chopped and pounded to a pulp and the juice pressed out. This is mixed with an equal volume of strong ethanol (86%) shaken and allowed to stand for at least five days, to allow settling, before use.

Drug power is stated as 1/2 (1 in 2) relating to the juice and the final ethanolic concentration is 43%.

The first centesimal potency 1c = 2 parts of the tincture to 98 parts of diluent (43% ethanol to maintain solubility)

The method was first described in Materia Medica Pura under Belladonna

METHOD 2

Two parts 86% ethanol is added to every three parts of fresh plant pulp.

This also gives a drug strength of 1/2 (1 in 2) as the loss on drying for these plants is in the region of two thirds and the final tincture is still equal parts of juice to added ethanol.

The macerating mixture is left to stand, for a minimum of 10 days, with shaking, then expressed and filtered. The final ethanolic concentration is also 43%

1c is prepared by adding 2 parts of the tincture to 98 parts of diluent (43% ethanol) as in Method 1

The method was first described in Materia Medica Pura under Thuja

METHOD 3

The method was first described in Materia Medica Pura under Scilla where 100 grains (6.4gm) of fresh bulb was mixed with 600 drops (approximately 24mls) of strong ethanol. Scilla contains approximately 75% water to the ratio of juice in this example is 4.8mls in 28.8mls = 1/6 (1 in 6)

1c is prepared by adding 6 parts of the tincture to 94 parts of diluent (62% ethanol)

METHOD 4

Five parts ethanol is added to every one part of plant material.

This method is used for dry plants or those with very low moisture contents.

The method was first described in Materia Medica Pura under Staphisagria and the stated drug strength is 1/10

1c is prepared by adding 10 parts of the tincture to 90 parts of diluent.

For extremely high moisture content plants a drug strength of 1 in 20 is necessary to have enough alcohol to preserve the tincture.

After the addition of alcohol the tincture is macerated in a cool dark place for a minimum of 10 days and a maximum of four weeks, with frequent shaking, before decanting, pressing out the liquid, and finally filtering. Mother tinctures should be used as soon as possible for preparing potencies and most have an expiry date of 2-3 years depending on the alcohol content.

Animal remedies such as Apis (whole female bees), Vespa (wasp) and the spider remedies Tarentula Hispania and Tarentula Cubensis are also made in the same way using the moisture content as a guide to formulation. Formic Rufa (red ants) is traditionally prepared

by triturating live red ants with lactose. These are the only remedies which involve killing and although there are many other animal remedies e.g. snake venoms, musk, beaver and skunk anal glands, where only specific parts are used.

Dilution

Potentiation is carried out in the centesimal scale by adding one part of the previous potency to 99 parts of dispensing alcohol and succussing. This is repeated to the required potency using separate vials at each stage. It takes a whole day to prepare a 200c from a mother tincture and most manufacturers do not go higher than this by hand.

The actual transfer of solution, from vial to vial, can be done using glass pipettes but is more commonly facilitated by forming one drop using a cork, other suitable stopper or bottle with a dropper. The size of the drop should be known and a manual volumetric dispenser can be set to deliver the equivalent of 99 drops quite easily. The bottle used for potentiation should be two thirds full when holding the 100 parts. This leaves one third empty so that the liquid has room to move and receive the kinetic energy of succussion. The decimal scale follows exactly the same procedure except the ratio is 1 part to 9 or 11 drops to 99 drops of diluent. The succussion process is exactly the same.

The very high potencies, 200 and above, are made using a single vial which automatically empties leaving the equivalent of 1 part left in the tube, refills with diluent (99 parts) and shakes. This method is known as Korsakov potentiation after the Russian homoeopath who first used it.

Choice of potency

As the number of dilutions increase the potency of the remedy gets higher. At 12c (10^{-24}) and above the dilution factor exceeds Avogadro's number of 6.023×10^{23} so there isn't even a molecule of the original substance left even if we started with a gram/mol of starting material. However the power to stimulate remains and the depth of stimulus increases the higher the potency. This is because the higher potencies are less material in nature and stimulate the non-physical (energetic) parts of the human being. The resulting response to the high potency takes longer to come to completion so 200c and above should be used with care. The simplest way to choose potency is to use low potencies for physically centred problems and higher potencies for more mental and emotional diseases. However this two dimensional model doesn't take into account intensity, strength of vitality and degrees of previous suppression so choice of potency is often a personal 'feel' by the prescriber and an inexact science. For counter prescribing potencies of 30c and below are recommended except in extreme cases e.g. Arnica 200 for intense shock reactions from accidents or injuries.

Question: Why should remedies made by the Korsakov method start above 12c?

Answer: It is possible that molecules of the original substance will never be 'washed out' due to adhesion to the glass wall of the shaking tube, thus restricting the development of potency which is dependant on continual step by step dilution of the starting material.

Number of succussions

The succussion (shaking) between each liquid dilution is described in the Organon § 270 as '*strong succussions with the hand against a hard but elastic object e.g. a leather bound book.*'

The number of shakes given to each dilution changed as Hahnemann developed his methods. He began with ten shakes then reduced to two then went back to ten later in his life when giving remedies in liquid form only. The LM potencies involve 100 succussions and are mentioned in the last (6th) edition of the Organon. Modern pharmacopoeias do not specify the number to use although the early British (1870) and American (1882) clearly give 10 strokes as a guide.

The effects of succussion

It is during trituration and succussion that kinetic energy is transferred into the lactose and solution and in an, as yet, unknown way creates an intensification of the power of the remedy to create symptoms and thus also heal. In fact Hahnemann reduced the number of succussions initially because he observed that 10 strokes was too strong and over stimulated patients thus aggravating their symptoms too much. Although it is a commonly observed phenomena that 'things get worse before they get better' during a curative process, an aggravation which is too intense can be uncomfortable and counter productive. Although aggravations are still commonly seen it is very difficult to quantify the changes in quality with the different intensity and frequency of shakes to create an optimum standard for today's medical problems and succussion techniques are left to the manufacturer's preference.

Research

Recent attempts to show that sub molecular solutions have some power to affect organisms has been demonstrated by researchers such as V. Popp and J. Benveniste measuring staining changes in basophil cell cultures fed with solutions way beyond the point where any molecule of original substance remains.

Nuclear magnetic resonance research has also been conducted into this phenomena showing that hydrogen bonding, the so called memory of water, and quantum changes in the solution during succussion are at the heart of the explanation. OH groups are abundant in water, ethanol and lactose and are thought to be the key to developing the potency. Within this memory not only is the identity of the remedy passed on from vial to vial during dilution but the degree of potency is also recorded and modified as potentiation continues up the scale.

You are referred to the following books for more information on this research.

'Scientific Foundations of Homeopathy' - Resch/Gutmann. pub. Barthel & Barthel

'Theory of high dilutions and experimental aspects' -Conte/Berliocchi/Lasne/Vernot. pub. Polytechnica (Paris)

Question: Why did Hahneman observe and state that trituration with lactose developed a more dynamic potency than liquid solutions?

Answer: Trituration uses a longer exposure to kinetic forces (i.e. 1 hour for each potency) and also lactose is more dense in OH groups than water and alcohol.

Potency nomenclature

Centesimal scale (1 in 100 dilution factor)

e.g. 3c or 3cH (three serial dilutions of 1 in 100 = a solution equivalent of 1 part in a million)
Korsakov potencies, using a mechanised single vial method, are also 1 in 100 dilutions but are labelled with 'K' to distinguish them from Hahnemannian separate vial (hand) methods.
e.g. 200K, 10MK

Decimal scale (1 in 10 dilution factor)

This was developed after Hahnemann by Constantine Hering, one of his students. The same methods are used but twice as many dilutions are made to reach an equivalent 'c' potency. This scale is commonly used on the continent for acute prescribing
e.g. 6x or D6 (six serial dilutions of 1 in 10 = a solution equivalent of 1 part in a million)

Fifty millesimal scale (1 in 50,000 dilution factor)

This was developed at the end of Hahnemann's life and was created in an attempt to create a more effective, non aggravating potency. It involves the wetting of a small granule to transfer a 500th of a drop from vial to vial and uses 100 succussions between each dilution. See Organon §270 for more details.
e.g. LM 1 or Q1 (quintimillesimal)

High Potencies are part of the centesimal scale and were developed after Hahemann mainly by Dr J T Kent in America. they have always been made by automated dilution and succussion machines using the single vial Korsakov emptying and refilling method. These are prescribed in single doses with infrequent repetition, are deep acting and are not suitable for acute prescribing or self help.

e.g. 1M = 1000c (i.e. it represents 1000 serial steps of 1 in 100)

10M = 10,000c

CM = 100,000c

Question: Considering that latin letter numbers are used for high potency nomenclature, what potency is MM?

Answer: 1,000,000c

Dispensing

Dosage forms

Potencies are mainly dispensed in solid form but are also sometimes used in liquid (usually 20% ethanol) for oral use.

Solid dosage forms are based on sucrose and lactose in various sizes. Efficacy is not affected by the form and it is chosen for the convenience of the patient.

The dosage forms commonly used are as follows:

Flat tablets (50% sucrose/50% lactose) are the most common and are quite hard, easily medicated (wetted) and can be sucked or chewed. They are most commonly used for adults.

Pillules are usually made from pure sucrose, are hard but very soluble and easily medicated. Used for all ages except infants.

Lactose only tablets, or trituration tablets are made from pressed lactose powder and are very quick dissolving. Very useful for all ages, animals but especially infants and small children as there is no risk of choking.

Granules are tiny sucrose balls and are usually used for babies.

Powders are individually wrapped lactose packets and are used for all ages when just a few doses only are prescribed.

Liquid remedies are very suitable for babies and animals but are preferred by some adults if there is sugar intolerance.

Mother tinctures are often prescribed either internally or externally and are taken in drop doses in water.

Creams and ointments are commonly used and contain mother tincture (3-5%) as the active ingredient in an aqueous or lanolin base.

Question: Which dosage forms could be used for a patient with lactose intolerance?

Answer: Pillules, granules and liquid remedies

Medication

Medication or impregnation is a technique which consists in fixing a homoeopathic liquid potency on a solid dosage form. The liquid potency is considered as the active ingredient for homoeopathic remedies. Hahnemann prepared his remedies in sucrose granule form and medicated them by filling a bottle of granules to the brim with the alcoholic potency, draining the excess out and drying the remainder on a filter paper. This has been modified over the years to simply add enough medicating potency to wet all the tablets, pills or granules etc. For practical purposes 1% v/w is a suitable guide given by the American and German pharmacopoeias for medication. Thus on a small scale e.g. a 2g bottle of tablets is suitably wetted by 1 drop of potency. This can be used as a minimum guide for larger quantities. As the strength of alcohol is above 70% (87-95% is the optimum) then there is no risk of disintegration of the tablet, even for the soft lactose tablets.

Powders are medicated by adding one drop to the outside of the powder. The medication soaks through and wets the lactose inside.

Liquid potencies are medicated by using 1% of the potency even though a further dilution, but without succussion, occurs. e.g. 5 drops in 10ml. For very low liquid potencies the correct proportion should be used e.g. 1ml of 2x to 9ml diluent to create 10mls of 3x potency followed by a succussion.

Question: If a combination of 3 remedies are requested in a tablet form, how would you medicate them?

Answer: Mix equal parts of the potencies in a vial first then medicate the tablets.

N.B. Combinations of different remedies in the same potency are best prepared by mixing them at the mother tincture level then potentising the combination tincture.

Dosage

For tablets and pills only one is necessary as a dose and there is no noticeable difference between one or two tablets. Actually the same stimulus is received regardless of the size of the dose and the frequency is a more important consideration in prescribing.

For liquid potencies it is the same principle although mother tinctures, which are more material in their dosage, require more precise attention. The most common dosages used here are 5 - 10 drops in water (to taste) two or three times a day.

Powders are often given as single or split doses (i.e. 2 or 3) and are usually taken within 24 hours only.

Remedies are absorbed via mucus membranes, Hahnemann described it as via 'the nerves in the mouth', so all doses should be held in the mouth or put under the tongue for at least a minute or two. It is possible that there are drug receptor interactions with remedies in the mouth as there are for some orthodox drugs. It is for this reason that remedies should be taken on a clean tongue at least 15 minutes before or after food. Olfaction of the alcoholic vapour of the potency is also a method for administering a remedy but is rarely used.

Question: Why is it not practical to give single or split doses other than in powder form?

Answer: Tablets and pills are easily lost, can disintegrate as they rattle around in the bottle, are over wetted if one drop of potency is put onto one or two tablets and cannot be numbered if placebo doses are required.

Storage and contamination problems

As homoeopathic remedies are materially extremely dilute it is important to be aware of conditions which may adversely affect the remedies during dispensing or storage. Any physical contamination will affect them and it is very important that there should be no contact of remedies with contaminated glassware or apparatus and breaking bulk is not recommended. Do not use tablet counters or triangles unless they are washed thoroughly and blanched with boiling water. Although quite robust, medicines have still been seen to work when put into water troughs in cow sheds!, every effort should be made to not handle them or expose them to physical impurities and it is best for patients to put the tablet into the cap before taking them. Essential oils, perfumes and other strong smelling reagents or drugs are particularly invasive and should be kept well away from homoeopathic dispensing areas. Odours from the morning coffee are also to be avoided.

The molecular and quantum representation of the remedy is also vulnerable to breakdown by heat (the exact temperature is unknown but prolonged temperatures above blood heat should be avoided). Storage under 30°C is the guide for good manufacturing practise. Ultra violet from direct sunlight is also to be avoided and is known to antidote remedies. The influence of X-rays at airport terminals are as yet unknown and it is hard to give a definitive answer. Some homoeopaths have noticed a detrimental effect and others are sure there is not a problem passing through x-rays. Perhaps, like the human organism, the answer is dependant on the number of exposures. In the absence of a machine to measure potency the full answer to this question will take some time to emerge.