# **DYNHOM** Phase I research project

UNIO Brussels 13th of May 2017

# A comprehensive approach

- ✓ Cuprum metallicum
- ✓ **GELSEMIUM SEMPERVIRENS**
- ✓ Scientific frame
- ✓ Practice

# Materia Medica
# Gelsemium sempervirens

Dr Yves Faingnaert

# GELSEMIUM SEMPERVIRENS

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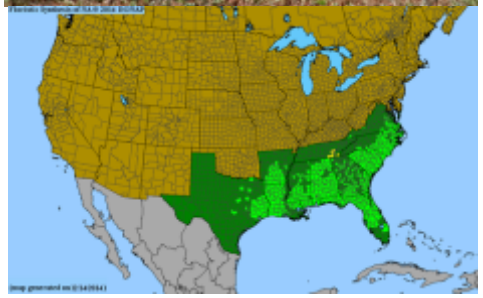
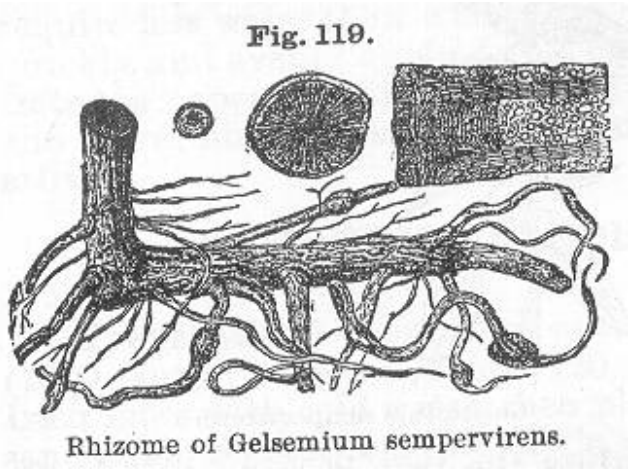
# Gelsemium Sempervirens

- Anxiety
- Fear examinations
- Influenza

# Gelsemium Sempervirens

- Logoniaceae
- South-East USA
- Toxins : exhaustion
  paralysis



# Gelsemium Sempervirens

- Cling = perseverance though competitive
- Mental and physical INHIBITION
- ANXIETY – anticipation
- Fear of losing control

# Gelsemium Sempervirens

- **STAGE FRIGHT:**
  **aversion public**
  **fear examines**
- **Anticipation**
- **As paralyzed – cramped**
- **Not handling situation !**

# Gelsemium Sempervirens

- UNCERTAIN
- No confidence
- Aware
- Fear : storm
  death
  heights – depts

# Gelsemium Sempervirens

- COWARD
- Cling : child at hand
- Brave ! Active !

↔

extremely anxious in se

# Gelsemium Sempervirens

- Alone
- Apathetic
- Hysterical
  anger attacks
- Sleepless
  after bad news

# Gelsemium Sempervirens

**Etiologic factors :**

- **Anticipation – fear**
- **Emotional shock**
- **Traumatic shock**
- **Bad news – grief**
- **Difficult convalescence**

# Gelsemium Sempervirens

**WEAK :**

- **Tired adolescent trembling**
- **No concentration**
- **Tired legs**
- **Ptose eyelids**
- **Difficult influenza recovery**

# Gelsemium Sempervirens

- Encephalitis
- Dull headache
  > urination
- Exhaustive migraine

# Gelsemium Sempervirens

**FEAR :**

- **Trembling chin**
- **Unclear voice**
- **Ball in throat**
- **Sensation cardiac arrest**
- **Aphonia during menses**
- **Anxiety stomach**

# Gelsemium Sempervirens

- Constipation
- Polyuria

# Gelsemium Sempervirens

- Neuralgia – PARALYSIS – paresis with trembling
- Coordination
- Poliomyelitis
- Cramps
- Sus-orbital neuralgia
- Sciatica

# Gelsemium Sempervirens

**LABOR :**

- **No contractions**
- **Rigid cervix**

# Gelsemium Sempervirens

**FLU**

- **Warmer t° – spring**
- **Summer flu**
- **Violent chills**

**Trembling**
**Weak legs**
**Drowsiness**
**Sleepiness**
**No thirst**
**No transpiration**

# Gelsemium Sempervirens

**Aggravation :**

- **WARM HUMIDITY**
  **heat – sun**
- **Barometric changes – storm**
- **Moist spring**
  **cool moisture**

# Gelsemium Sempervirens

**Amelioration :**

- **Urination**
- **10 am**

# Gelsemium Sempervirens

*Thank you for your kind attention*

# Pillules Impregnation GPP

# Case Study
# Gelsemium sempervirens

Dr Hélène Renoux

# Sleeplessness Cassandra

- Woman 66 years old,
- First consultation 26th of March 2011
- Aim : withdrawal of anxiolytics and sleeping pills : Lexomil and Stilnox
- With these medications she can only sleep between midnight and 5am.
- But in fact she has panick attacks since very long
- Fear of accident, fear of bad news

# Sleeplessness Cassandra

- The anxiety is always linked to bad news.
- Such as the tsunami on TV
- With trembling, confusion, disorientation, fear of loss of control
- Lost in roads she knows well.

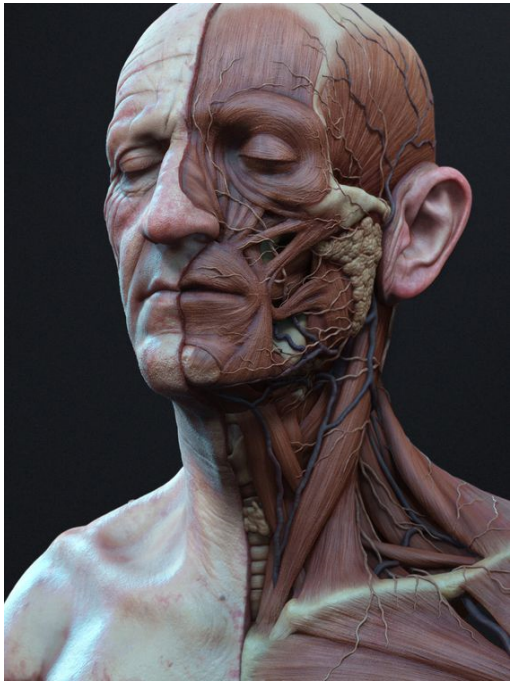
# Sleeplessnesss Cassandra

- Background: She is a piano teacher and a painter, she paints 17th century sceneries or more personal creations

- Hysterectomy, thyroidectomy (levothyrox)
- Arthrosis knee
- Desire for sweets, aversion to milk
- Thirstless, chilly

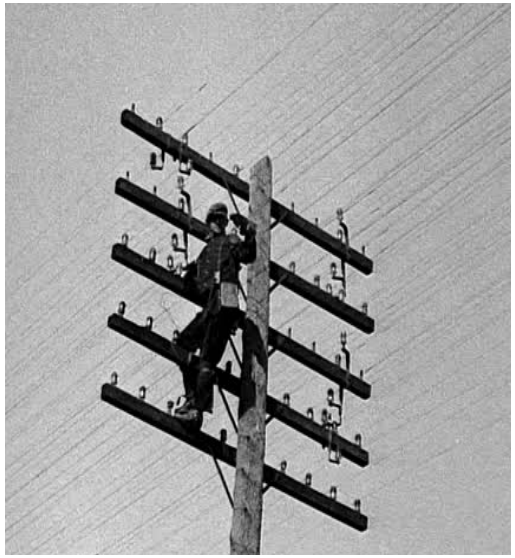
# Sleeplessness Cassandra

- Younger she attempted suicide after a disappointed love
- Then 25 years of psychoanalysis…
- But still when she hears a bad new she loses control
- And what about your personal creations?
- Entrails !



# Sleeplessness Cassandra

- She witnessed a terrible accident when she was a child
- A man fell out of a pole, in front of her
- His brain exploded on the ground
- Since then she tends to anticipate accidents with a terrible anxiety
- Prescription : **Gelsemium sempervirens 2OOK**
- 5 pills each night for 8 days



# Sleeplessness Cassandra

- Second consultation 21st of July 2011
- Immediate results, Stilnox withdrawn, fine sleep
- Progressively early waking again and return to medications
- No more episode of confusion
- Extremely chilly
- Weak libido
- **Gelsemium sempervirens LM5**, 3 pills before going to bed for 3 months

# Sleeplessness Cassandra

- 3rd consultation 4th of October 2012
- Complete withdrawal of anxiolytics and sleeping pills
- Seldom terrifying images during a nap without important disturbance
- Aim : long lasting flu, failure of antibiotics, « frozen and cold »
- Prescription : Echinacea TM

# **Sleeplessness Cassandra** : repertorization

| | | |
|---|---|---|
| 1 | PSYCHISME - TROUBLES SUITE DE - frayeur - accident; à la vue d'un | 3 |
| 2 | PSYCHISME - TROUBLES SUITE DE - frayeur | 85 |
| 3 | PSYCHISME - TROUBLES SUITE DE - mental; choc | 45 |
| 4 | PSYCHISME - PEUR - tremblant de peur | 45 |
| 5 | GÉNÉRAUX - CHALEUR - manque de chaleur vitale | 282 |
| 6 | PSYCHISME - TROUBLES SUITE DE - mauvaises nouvelles | 67 |
| 7 | ESTOMAC - ABSENCE de soif | 189 |
| 8 | PSYCHISME - HORRIBLES et des histoires tristes; profondément affecté par des choses | 67 |

| | gels. | calc. | op. | acon. | puls. | nux-v. | phos. | aur. | caust. | nat-m. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7/17 | 7/16 | 7/16 | 7/13 | 7/13 | 6/11 | 6/11 | 6/10 | 6/10 | 6/10 | |
| 1 | - | 2 | 4 | 4 | - | - | - | - | - | - | |
| 2 | 3 | 1 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | |
| 3 | 1 | - | 2 | 1 | 1 | 1 | - | - | - | 1 | |
| 4 | 3 | 2 | 3 | 1 | 1 | - | 1 | 2 | 1 | - | |
| 5 | 2 | 3 | 1 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | |
| 6 | 4 | 3 | - | 1 | 1 | 2 | 1 | 1 | 1 | 2 | |
| 7 | 3 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | |
| 8 | 1 | 4 | 1 | - | 2 | 2 | 2 | 2 | 2 | 2 | |

# Sleelessness Cassandra

- Differential diagnosis between Gelsemium, Opium and Aconit
- Gelsemium because « ailments from bad news », not only the early trauma, but also confusion by ANY bad news (Tsunami)
- The key symptom: **She anticipates accidents in any assumed dangerous situation**

# Veterinarian Case Study
# Gelsemium sempervirens

Dr Arlette Blanchy

# Gelsemium Animal case

- I followed Bambou since early age.
- Recently he presents violent sneezing periods. So acute that he is hitting the nose on the ground. Watery liquid is coming out of the nose, this liquid becoming mist in contact with air. Little lachrymations. After a few days everything get back to normal with or without remedies.

# Gelsemium Animal case

- Typical coryza crisis.
- Good general condition.
- Affectionate easy character, need of company, accepting easily the arrival of a little boy and of girl two years later in the family.

# Gelsemium Animal case

- Sometime frightened by the little boy regularly overwhelming activities. The little girl, attracted by the cat's soft fur, hug him regularly. The cat remain stoic and let it do…

# Gelsemium Animal case

- This was the situation during a few years.
- For the coryza crisis Kali-bichromicum, Sabadilla, Euphrasia, …, were prescribed.

# Gelsemium Animal case

- One day, I am contacted urgently because the cat is not going well. The owner explained that Bambou shakes the head. Trying to scratch the ear.
- At the same time he presented a totally abnormal behaviour.

# Gelsemium Animal case

- He sit, head little tilted, front legs apart.
- At each move he nearly falls, trying with great difficulty to stay right up.
- Thinking at a vestibular syndrome due to a ear inflammation, complementary investigations would be needed (scanner, sampling …)

# Gelsemium Animal case

- Waiting for these investigations I already performed a repertorisation of the clinical symptoms adding what we already know about Bambou, the master lines of this clinical picture.

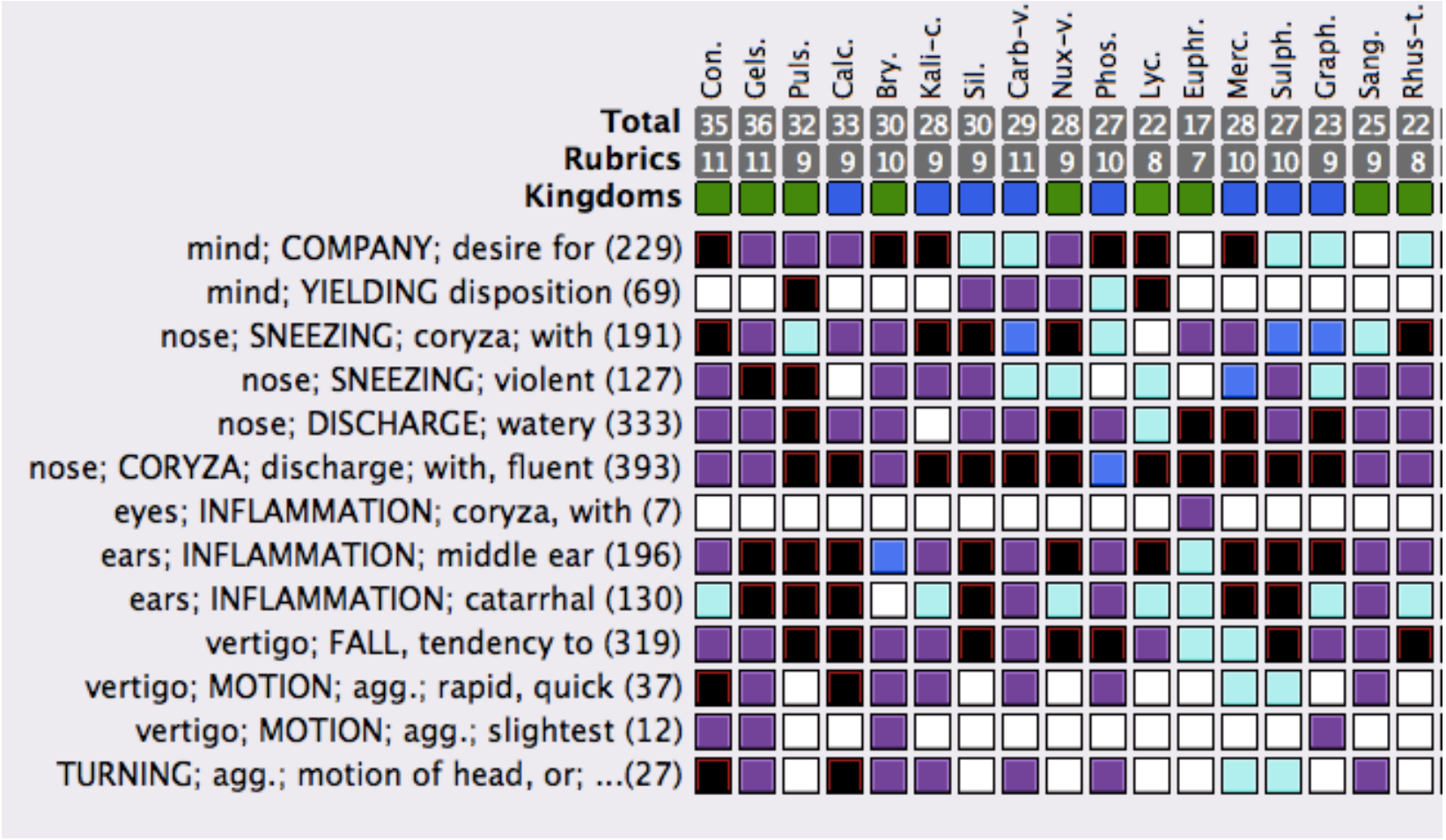
# Gelsemium Animal case

- Old symptoms
- mind; COMPANY; desire for
- mind; YIELDING disposition
- nose; SNEEZING; coryza; with
- nose; SNEEZING; violent
- nose; DISCHARGE; watery
- nose; CORYZA; discharge; with, fluent
- eyes; INFLAMMATION; coryza, with

# Gelsemium Animal case

- Actual symptoms
- ears; INFLAMMATION; middle ear
- ears; INFLAMMATION; catarrhal
- vertigo; FALL, tendency to
- vertigo; MOTION; agg.; rapid, quick
- vertigo; MOTION; agg.; slightest
- vertigo; TURNING; agg.; motion of head, or; rapid, quick, sudden

# Gelsemium Animal case



# Gelsemium Animal case

- Cleaning the ears with sweet almond oil.
- Gels 30 K 3 pillules every day during 3 days (excepted if changes in between).

- 2 intakes have been enough, everything goes back to normal.

# Epigenetic Research
# Gelsemium sempervirens

PhD Etienne Capieaux

# Biological evidence for an effect of high homeopathic potencies using biomolecular tools

*Etienne CAPIEAUX*
*Ir PhD*

*DYNHOM 13 mai 2017*

*Gelsemium*

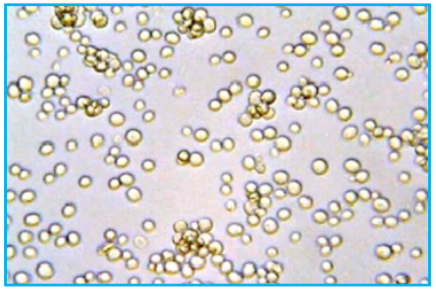
## L’homéopathie est reliée à la vie

# Impacts de médications homéopathiques

# sur des organismes vivants

# Impacts de médications homéopathiques sur des organismes vivants

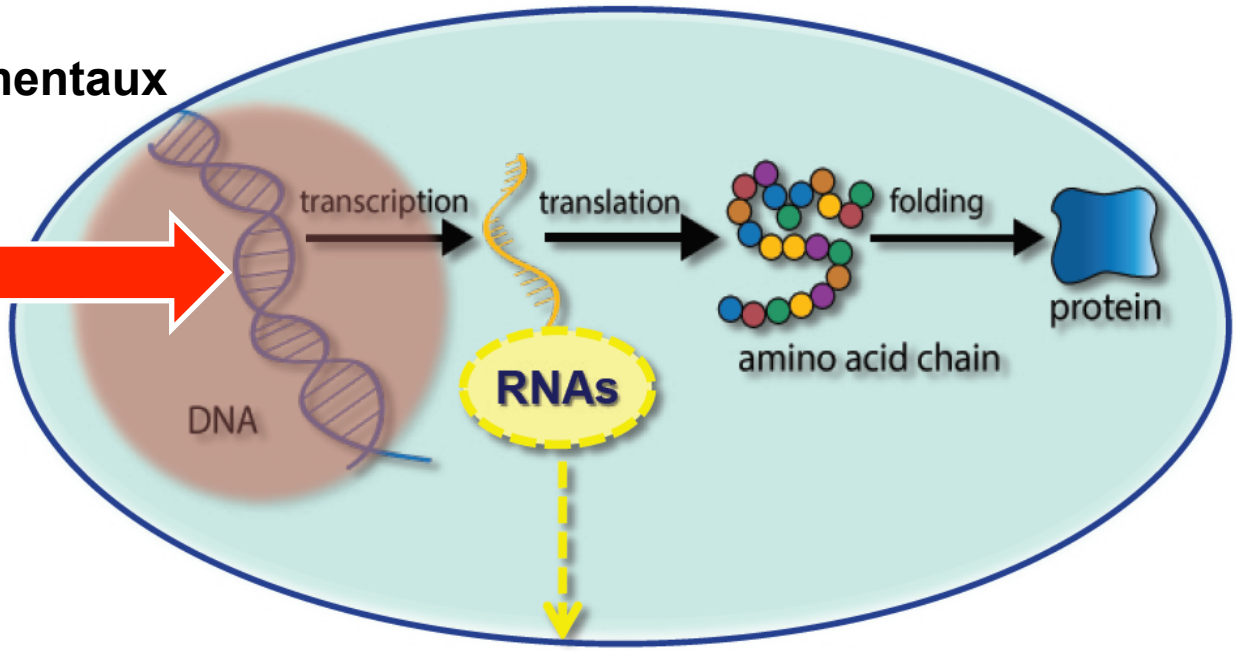
High Homeopathic Potencies



→ Biological activities

**Impacts environnementaux**

**Conséquences phénotypiques**




Expression génique

# Facteurs environnementaux

Alimentation

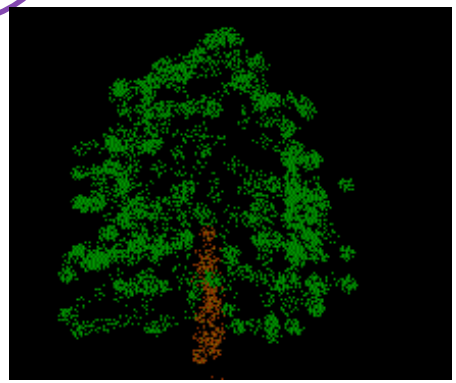
Hygiène de vie

Climat émotionnel

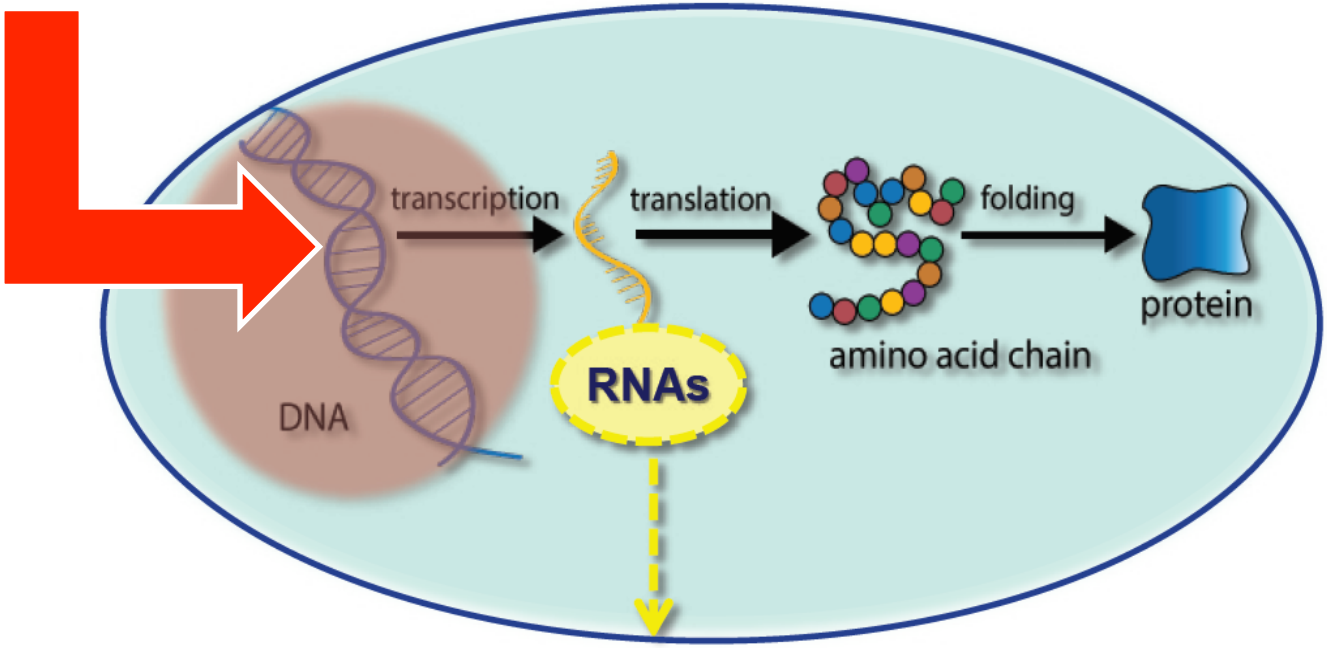
Climat hormonal

Médicaments allopathiques

Médicaments informationnels

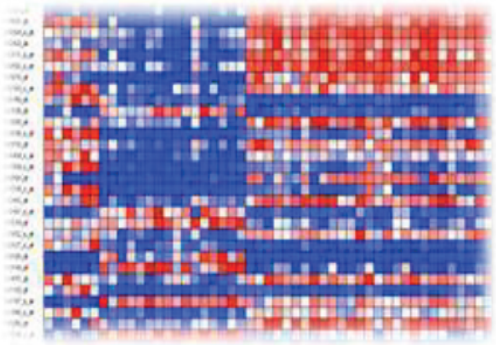


# Médicament homéopathique




**Conséquences phénotypiques**

**Expression génique**



*Vu par les techniques de la biologie moléculaire,*

*toutes les évidences expérimentales vont dans le même sens*

- **Un message homéopathique impacte sur l'expression d'un gène**
- **L'impacte au niveau de la transcription**
- **On est dans une régulation de type ''Epigénétique''**

# Publications récentes
# Expression génique & Médications homéopathiques

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| ***Arnica m.*** | 2C, 3C, 5C, 9C, 15C | THP-1 | ↓ expression of inflammatory genes<br>↑ expression chemokine genes | (Olioso et al. in preparation) |

*Bellavite and al., LIGA Conferences Rio de Janeiro 2015*

***Vu par les techniques de la biologie moléculaire,***

***toutes les évidences expérimentales vont dans le même sens***

- **Un message homéopathique impacte sur l'expression d'un gène**
- **L'impacte au niveau de la transcription**
- **On est dans une régulation de type "Epigénétique"**

# Inactivation des gènes par modifications épigénétiques

| Gènes | | Types de cancers associés |
|---|---|---|
| ***Cycle cellulaire*** | | |
| **Rb** | *Inhibition de la transcription* | Rétinoblastome, **gliome,** cancer du **colon** |
| **P16 INK4A** | *Inhibiteur des CDK 4 et 6* | **Leucémie, lymphome**, cancers de la **peau** et du **poumon** |
| **P15 INK4B** | *Inhibiteur des CDK 4 et 6* | Leucémie, lymphome |
| ***Intégrité du génome*** | | |
| **P53** | *Transcription de gènes (cycle et apoptose) et réparation de l'ADN* | Cancers du **poumon**, de la **prostate** |
| **BRCA** | *Régulation de la transcription et réparation de l'ADN* | Cancers du **sein** et de l'**ovaire** |
| **hMLH1** | *Réparation de l'ADN* | Cancers **gastrique**, du **colon** et de l'**ovaire** |
| ***Réponse aux facteurs de croissance*** | | |
| **PTEN** | *Inhibition de la voie de la PI3-K* | **Glioblastome**, cancers **gastrique**, du **sein** et de la **thyroïde** |
| **ER** | *Contrôle de la prolifération* | Cancers du **sein** et de la **prostate** |

*MEDECINE/SCIENCES 2005 ; 21 : 405-11 :*
*Modifications épigénétiques et cancer Sophie Deltour, Valérie Chopin, Dominique Leprince*

# Faisons un zoom sur

# Ruta Graveolens

# 200CH

# Efficacité de médications homéopathiques

# Ruta graveolens 200CH

Integrative Cancer Therapies
http://ict.sagepub.com/

**Induction of Apoptosis of Tumor Cells by Some Potentiated Homeopathic Drugs: Implications on Mechanism of Action**

Korengath Preethi, PhD[1], Sunila Ellanghiyil, PhD[1], Girija Kuttan, PhD[1], and Ramadasan Kuttan, PhD[1]

**”*in vitro*”**

**Lignées humaines**

**DLA (Lymphome)**

**Puce à 15.000 gènes**

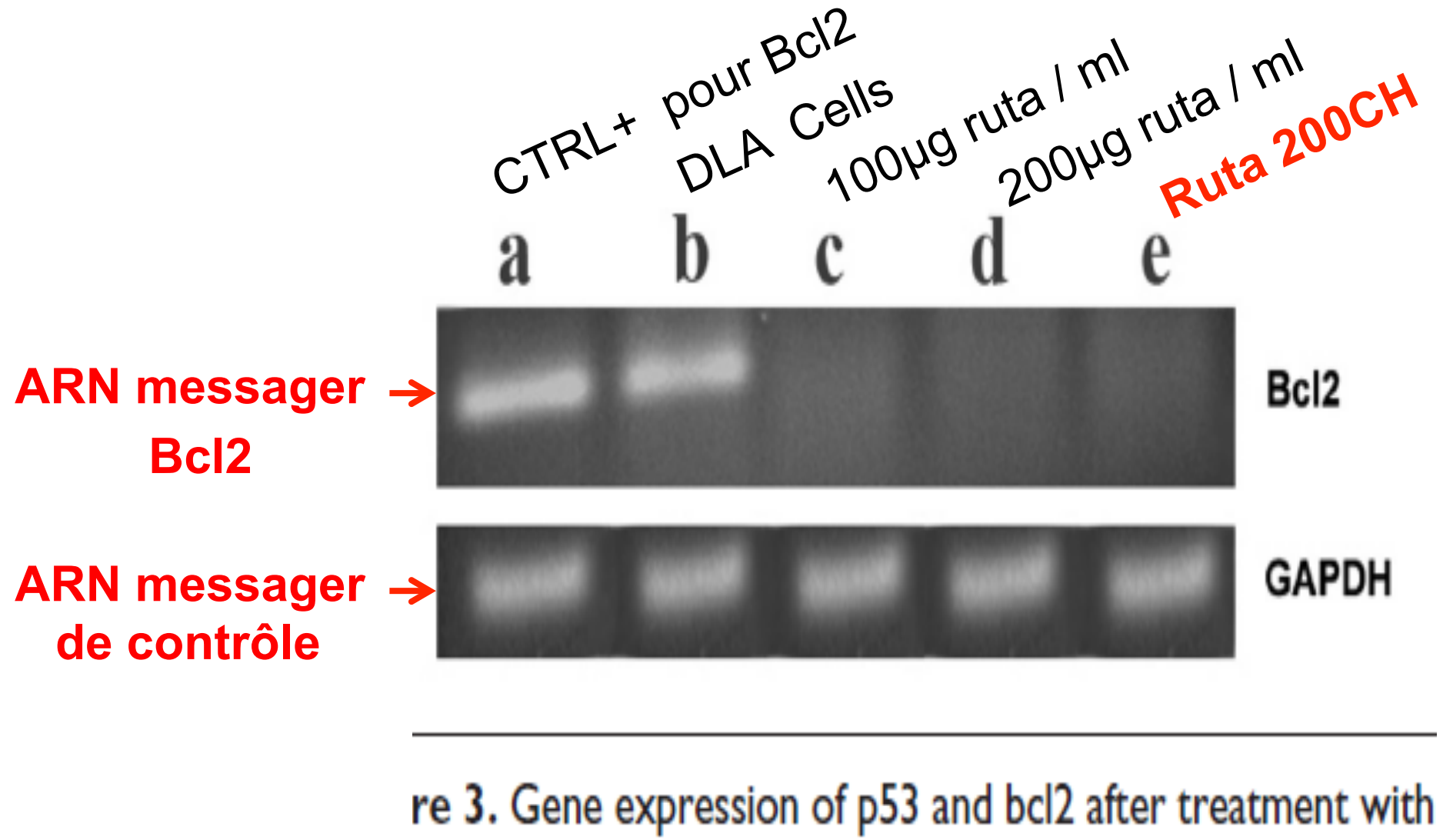
## Conclusions

# Ruta graveolens 200CH

Impact sur l'expression génique de gènes impliqués dans

l'**apoptose** *(upregulation)* 

l'**oncogenèse** *(downregulation)* 




re 3. Gene expression of p53 and bcl2 after treatment with

## Results

### *Effect of R graveolens and Ruta 200C on the Induction of Apoptosis*

*Morphology and DNA laddering*. Results indicated that *R graveolens* as well as Ruta 200C induced apoptosis, as seen by the morphological features of the treated DLA cells.

DLA Cells

100µg ruta / ml

200µg ruta / ml

**Ruta 200CH**



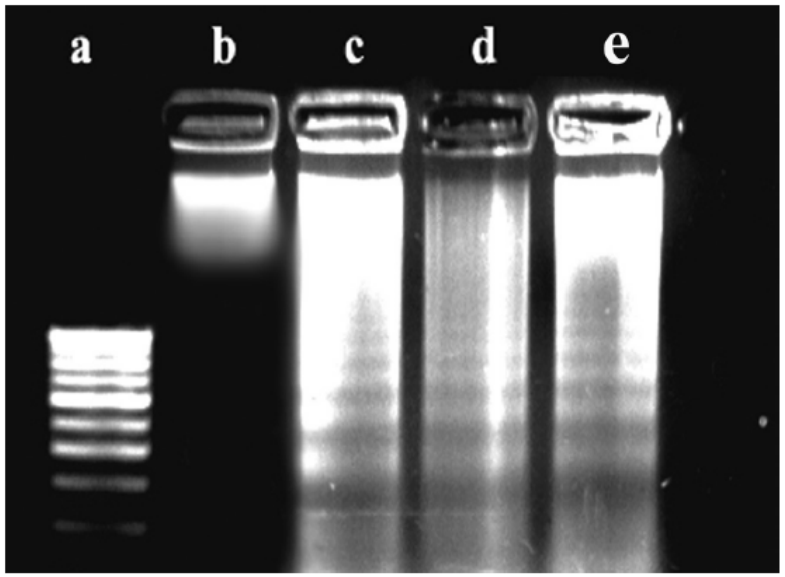



**Figure 2.** DNA laddering after treatment with *Ruta graveolens* and Ruta 200C (in vitro): lane a, molecular weight marker (100 bp); lane b, untreated control; lane c, treated with *R graveolens* (100 µg/mL); lane d, treated with *R graveolens* (200 µg/mL); lane e, Treated with Ruta 200C (20 µL/mL)

## Results

*Effect of R graveolens and Ruta 200C on the Induction of Apoptosis*

Dalton's lymphoma ascite (DLA)

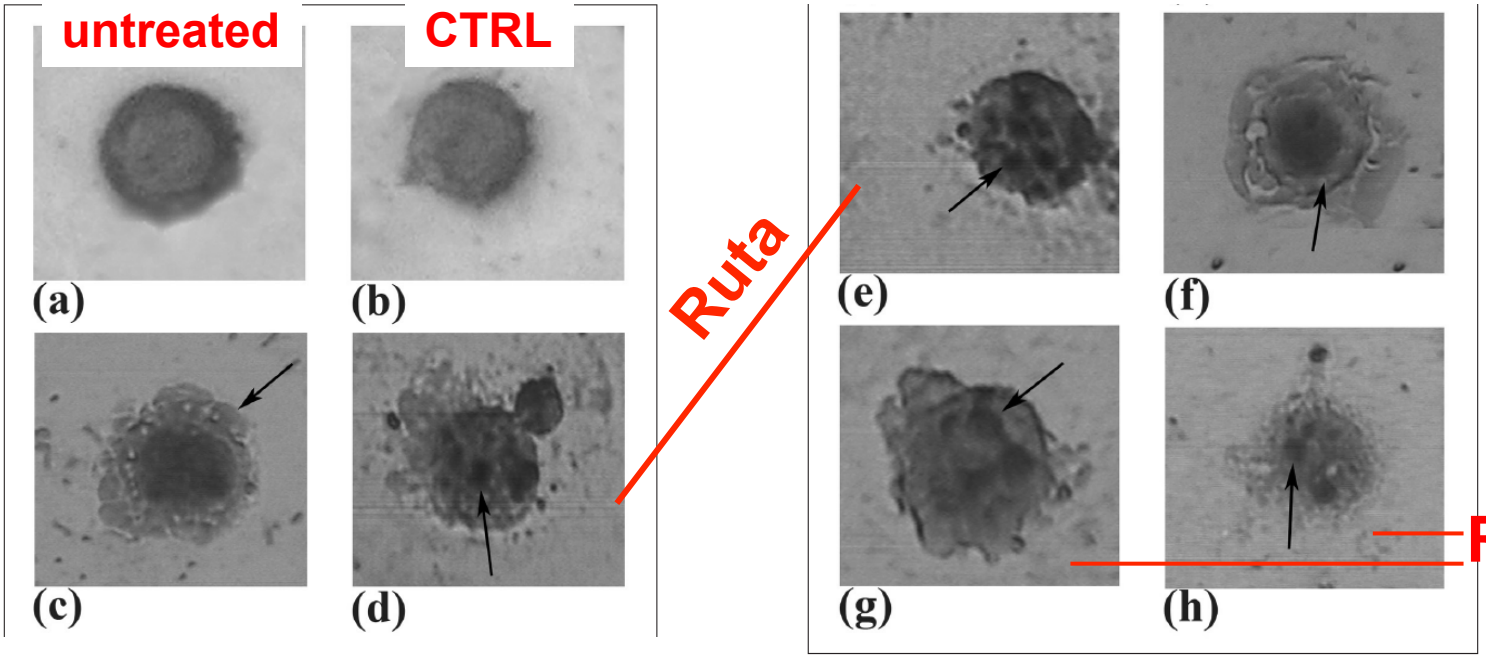



**Figure 1.** Morphology of Dalton's lymphoma ascite (DLA) cells after treatment with *Ruta graveolens* and Ruta 200C (in vitro) (400×): A. untreated DLA cells; B. vehicle control (1% alcohol); C. cell treated with *R graveolens* showing blebbing; D, E. cell treated with *R graveolens* showing apoptotic bodies; F. cell treated with Ruta 200C showing chromatin condensation; G, H. cell treated with Ruta 200C showing apoptotic bodies

# Publications récentes
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*Bellavite and al., LIGA Conferences Rio de Janeiro 2015*

# GELSEMIUM

***(Gelsemium sempervirens L.)***

Marzotto *et al. BMC Complementary and Alternative Medicine* 2014, **14**:104
http://www.biomedcentral.com/1472-6882/14/104

BMC
Complementary & Alternative Medicine

RESEARCH ARTICLE Open Access

## Extreme sensitivity of gene expression in human SH-SY5Y neurocytes to ultra-low doses of *Gelsemium sempervirens*

Marta Marzotto[1], Debora Olioso[1], Maurizio Brizzi[2], Paola Tononi[3], Mirco Cristofoletti[1] and Paolo Bellavite[1*]


CIRSAL

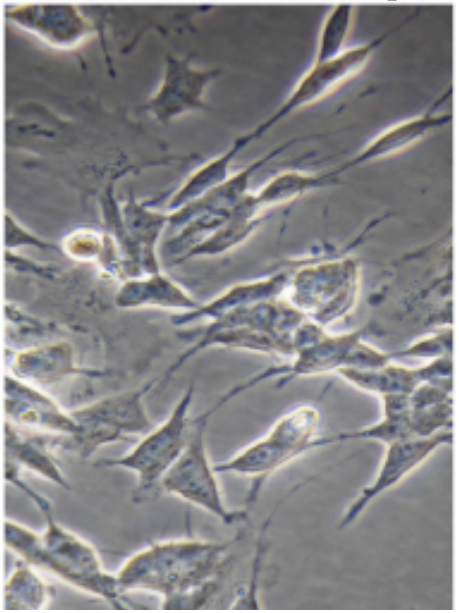
# GELSEMIUM

***(Gelsemium sempervirens L.)***

*OP racine*

**2 – 3 – 4 – 5 – 9 – 30 CH**

**”*in vitro*”**
**Lignées humaines**
**Neurocytes**
**Puce à 45.033 spots**



SH-SY5Y - IMR-32

# GELSEMIUM

56 gènes ⟶ Expression Génique modifiée

- Gènes de la fonction neuronale (TAC4 et GALR2) (2 neuropeptides)
- Gènes impliqués dans la transduction olfactive
- Gènes impliqués dans l'inflammation
- Gènes impliqués dans la signalisation calcique (Ca++)
- ……

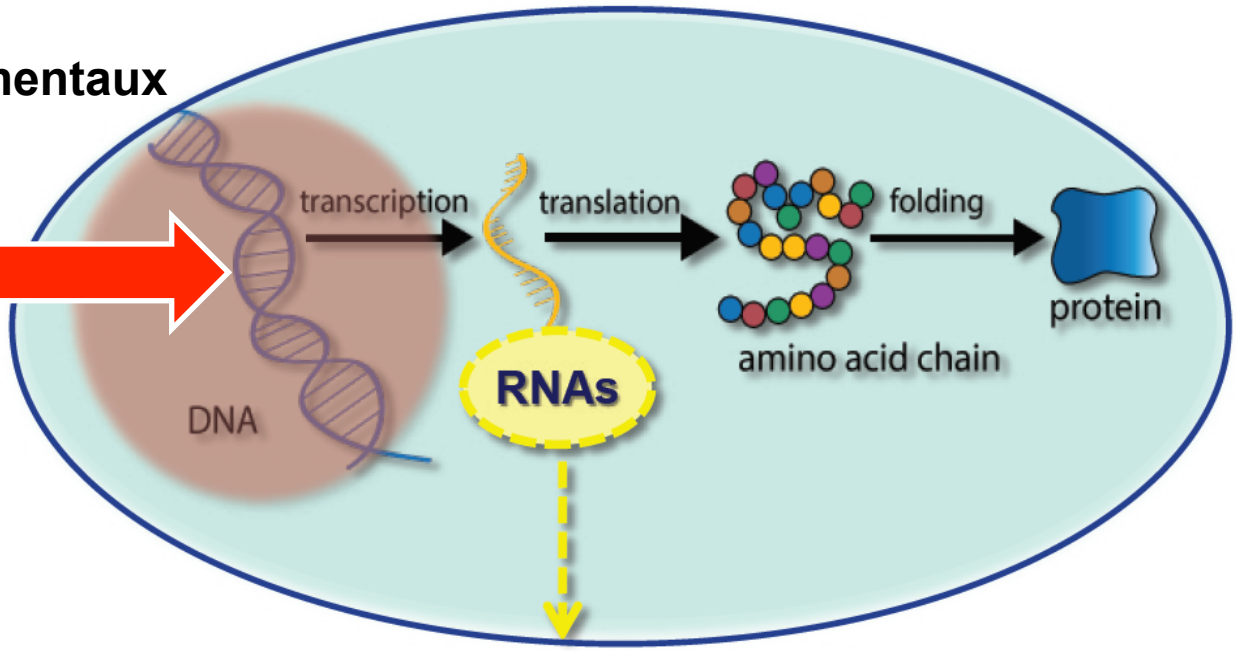
49↘ et 7↗

( The prevalence of down-regulation indicate a tendency to reduce cell excitability)

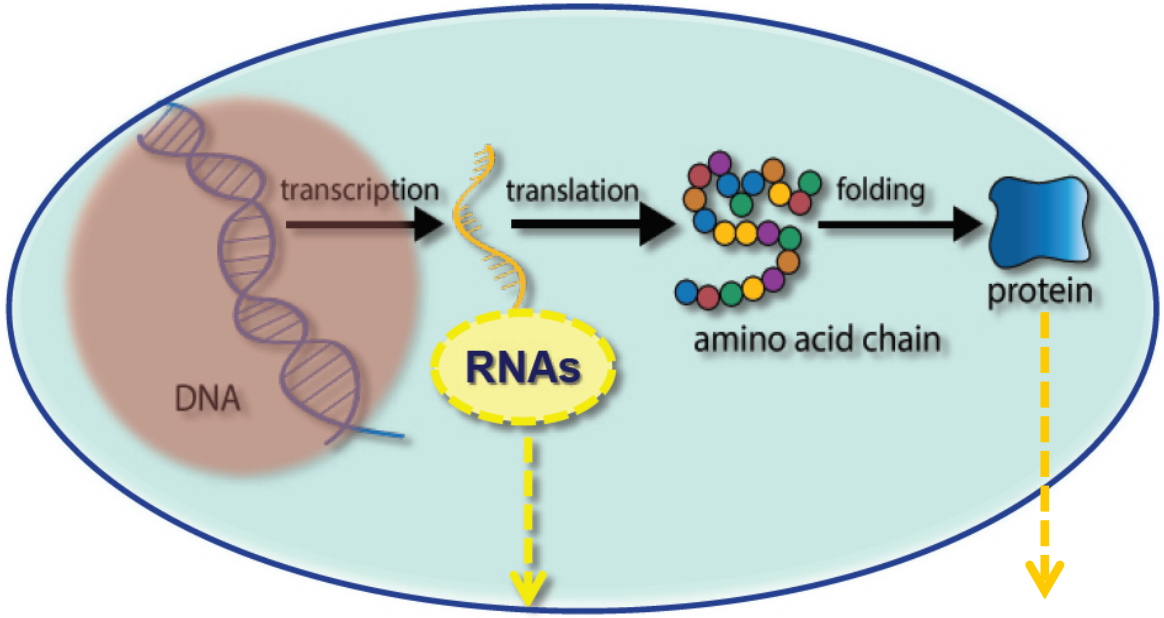
Anxiolytique /Céphalées/chocs affectifs et émotionnels

**Impacts environnementaux**

**Conséquences phénotypiques**




Expression génique



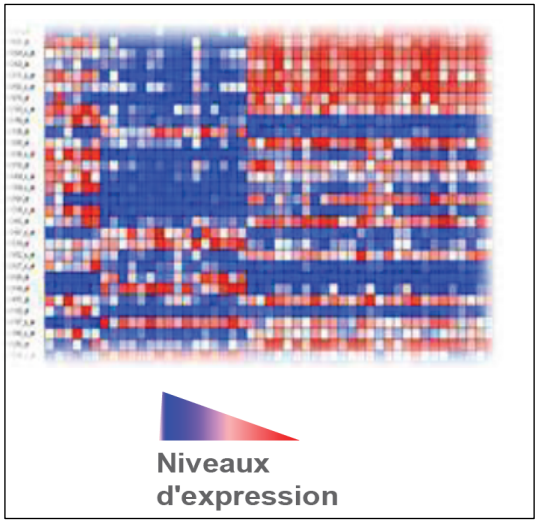

Expression génique

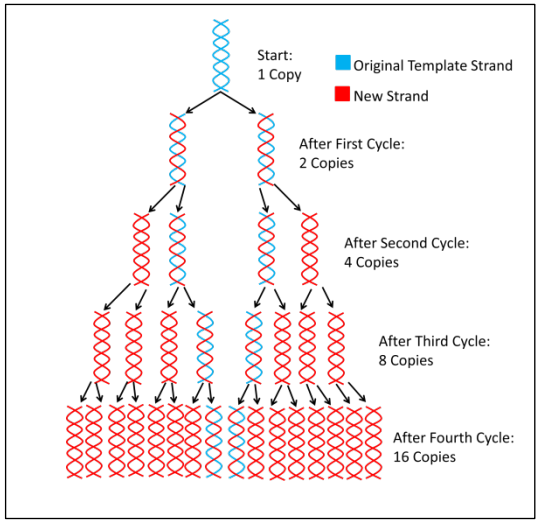
Expression génique

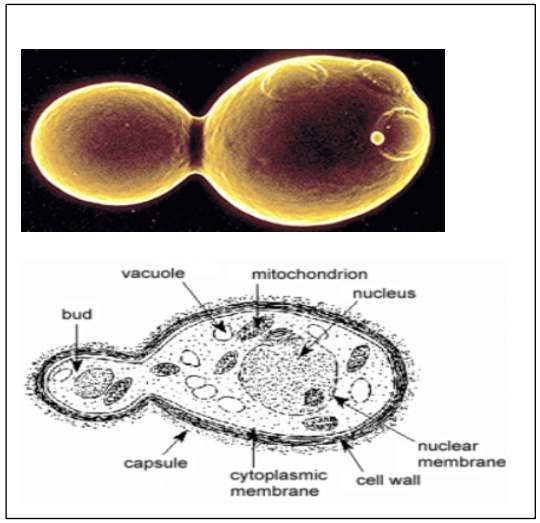
MicroArrays (Puces)

RT PCR

Expression hétérologue



# Merci !

Merci !

# Et à tout à l’heure 14 h ….

# Particles search
# Gelsemium sempervirens

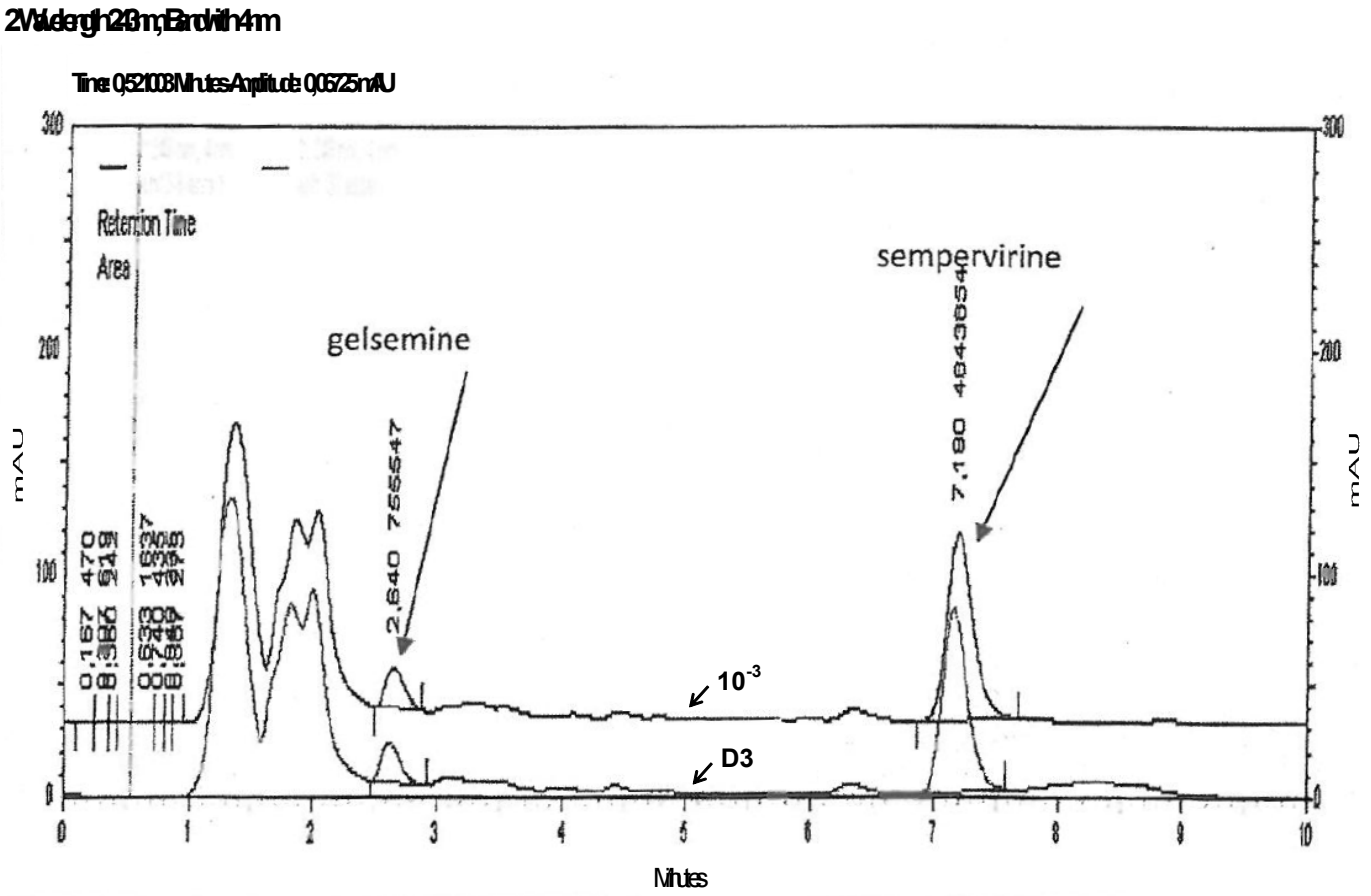
MD Michel Van Wassenhoven

## High Performance Liquid Chromatography. HPLC-UV

- **Gelsemium sempervirens**

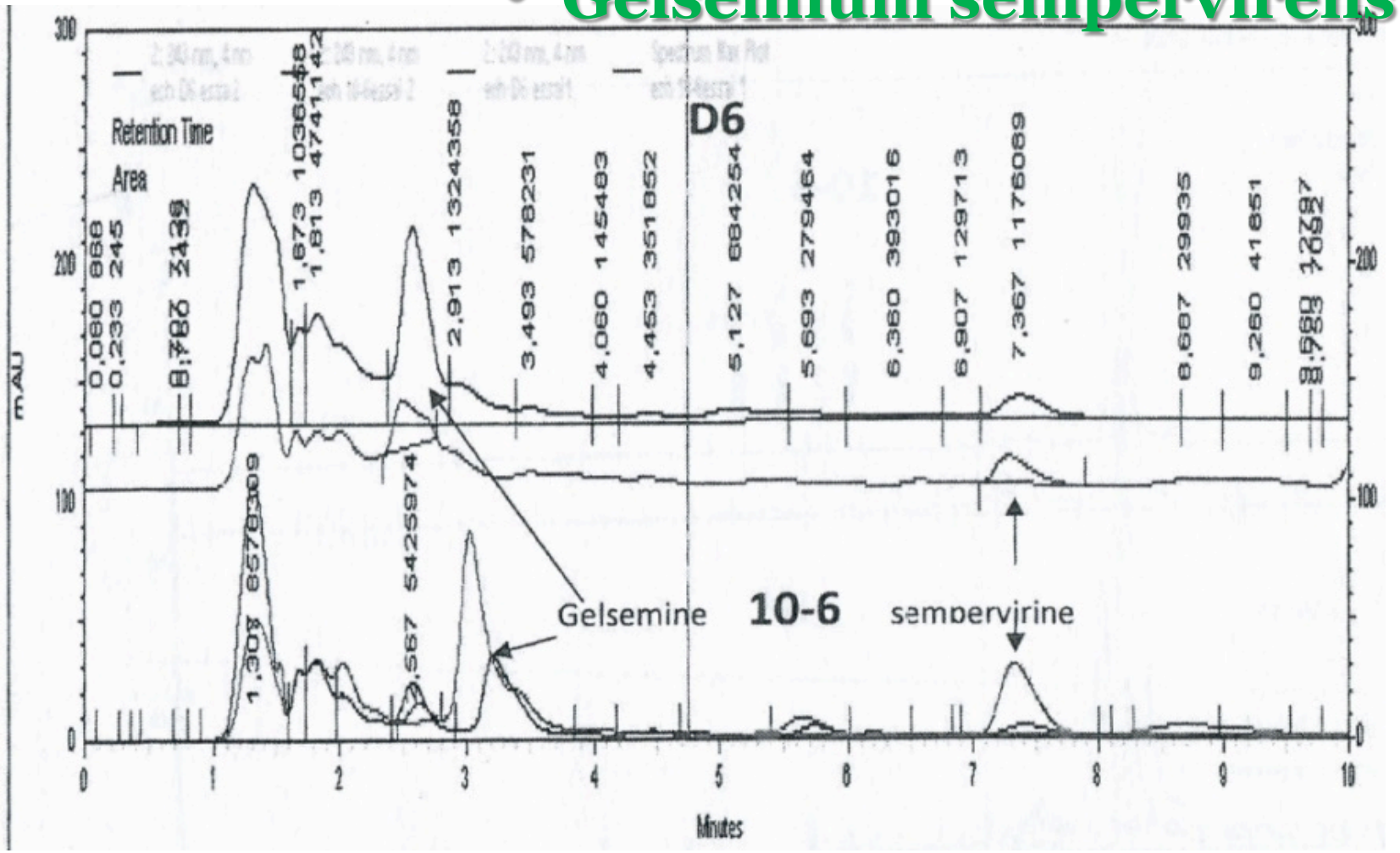
# High Performance Liquid Chromatography. HPLC-UV

- **Gelsemium sempervirens**



## High Performance Liquid Chromatography. HPLC-UV

- **Gelsemium sempervirens**



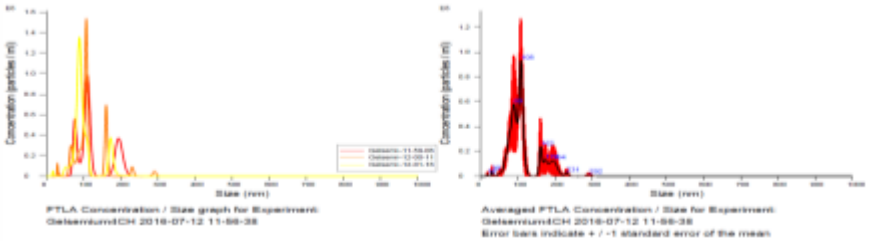
# High Performance Liquid Chromatography. HPLC-UV

- **Gelsemium sempervirens**

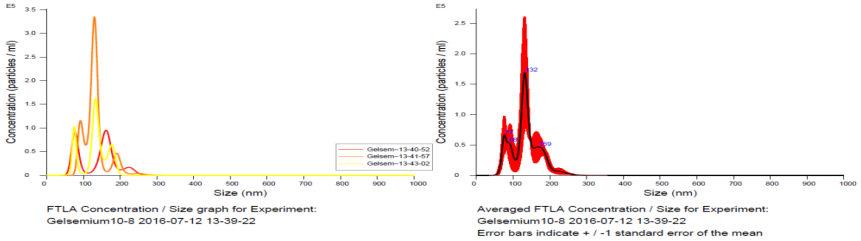
| | Sempervirine | Gelsemine |
|---|---|---|
| | (Mean ± standard deviation) | (Mean ± standard deviation) |
| Mother Tincture (dilution 50x) | 577.1 µg/ml ± 1.1 | 354.0 µg/ml ± 1.5 |
| Mother Tincture (dilution 20x) | 577.5 µg/ml ± 3.8 | 360.2 µg/ml ± 0.3 |
| 1D | 165.5 µg/ml ± 1.7 | 116.1 µg/ml ± 1.7 |
| $10^{-1}$ | 179.0 µg/ml ± 0.8 | 111.6 µg/ml ± 1.7 |
| 2D | 16.1 µg/ml ± 1.8 | 15.5 µg/ml ± 1.5 |
| $10^{-2}$ | 16.0 µg/ml ± 2.5 | 17.9 µg/ml ± 5.1 |
| 3D | 1.51 µg/ml ± 1.8 | 1.44 µg/ml ± 2.2 |
| $10^{-3}$ | 1.56 µg/ml ± 2.7 | 1.44 µg/ml ± 3.3 |
| 4D | 0.117 µg/ml ± 8.3 | 0.115 µg/ml ± 2.8 |
| $10^{-4}$ | 0.117 µg/ml ± 5 | 0.112 µg/ml ± 2.7 |
| 5D | 0.00722 µg/ml ± 11.1 | 0.01076 µg/ml ± 11.2 |
| $10^{-5}$ | 0.00749 µg/ml ± 2.4 | 0.01074 µg/ml ± 0.7 |
| 6D | Non quantifiable | Non quantifiable |
| $10^{-6}$ | Non quantifiable | Non quantifiable |

# NTA : Nanoparticle Tracking Analysis

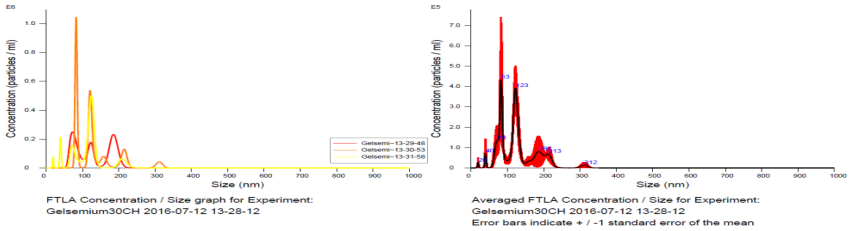
## Gelsemium 4CH



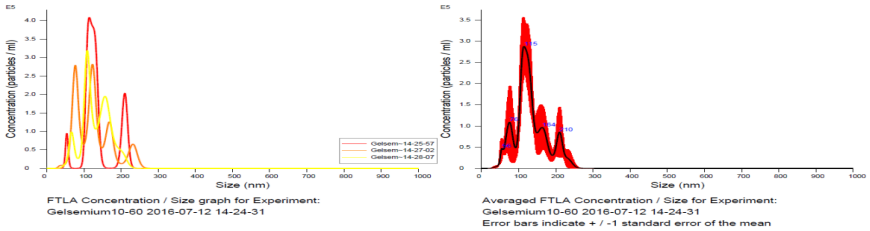

## Gelsemium $10^{-8}$



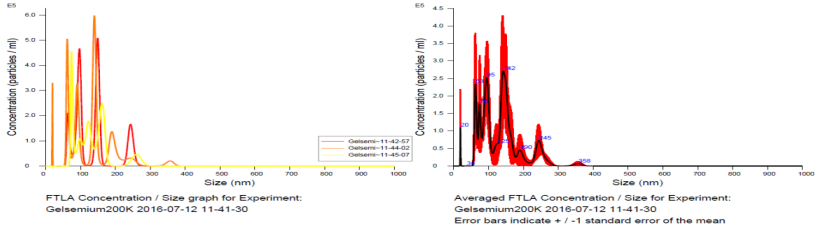

## Gelsemium 30CH



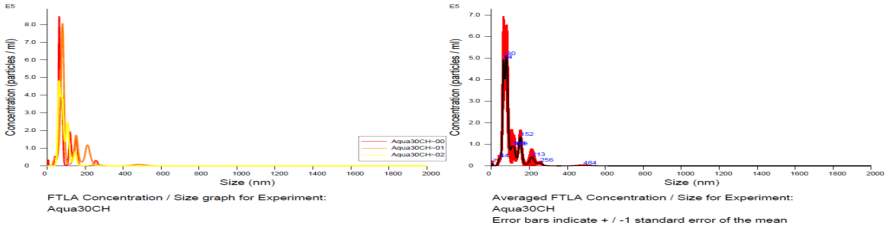

## Gelsemium $10^{-60}$



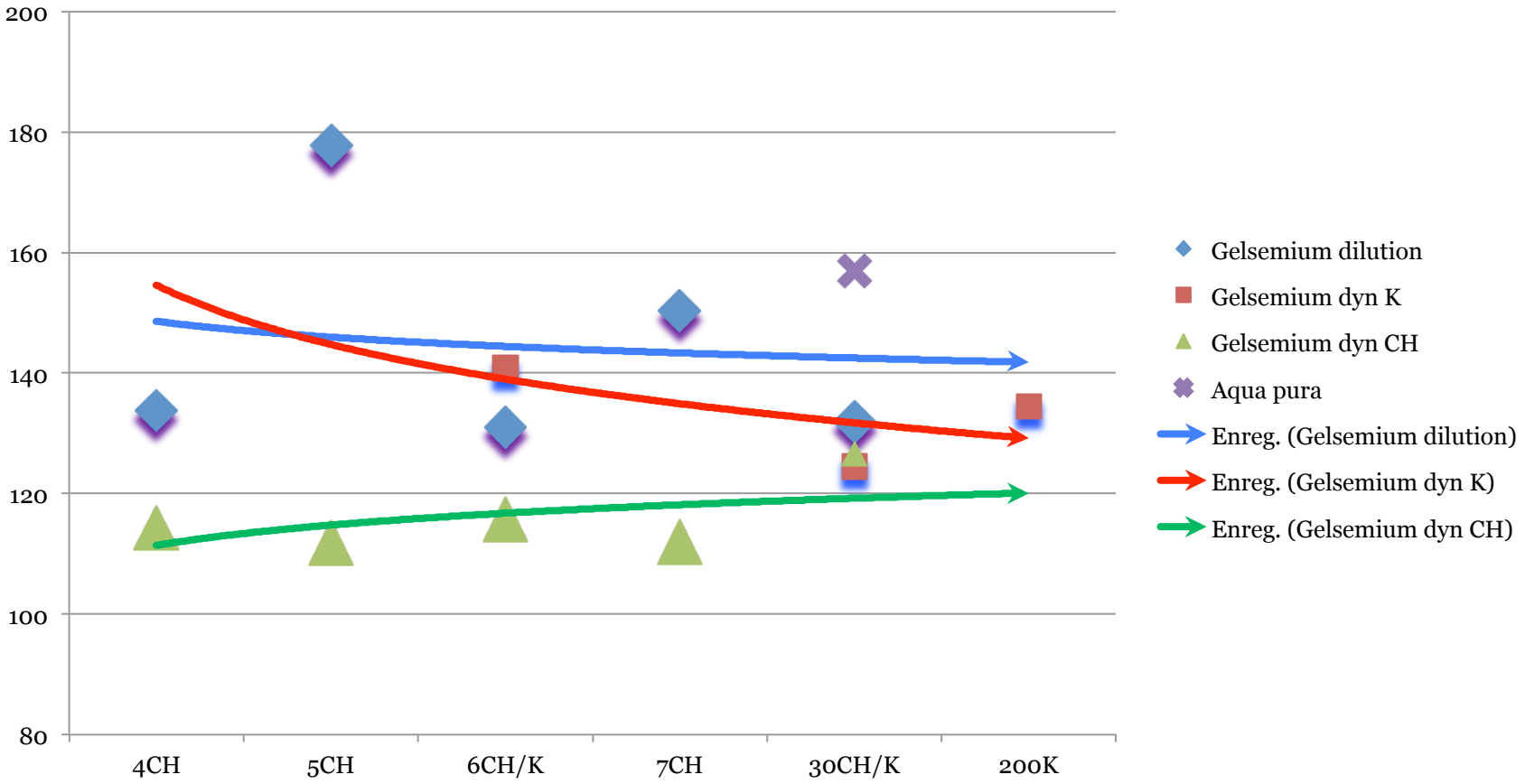

## Gelsemium 200K




## Aqua Pura 30CH (Glass containers)

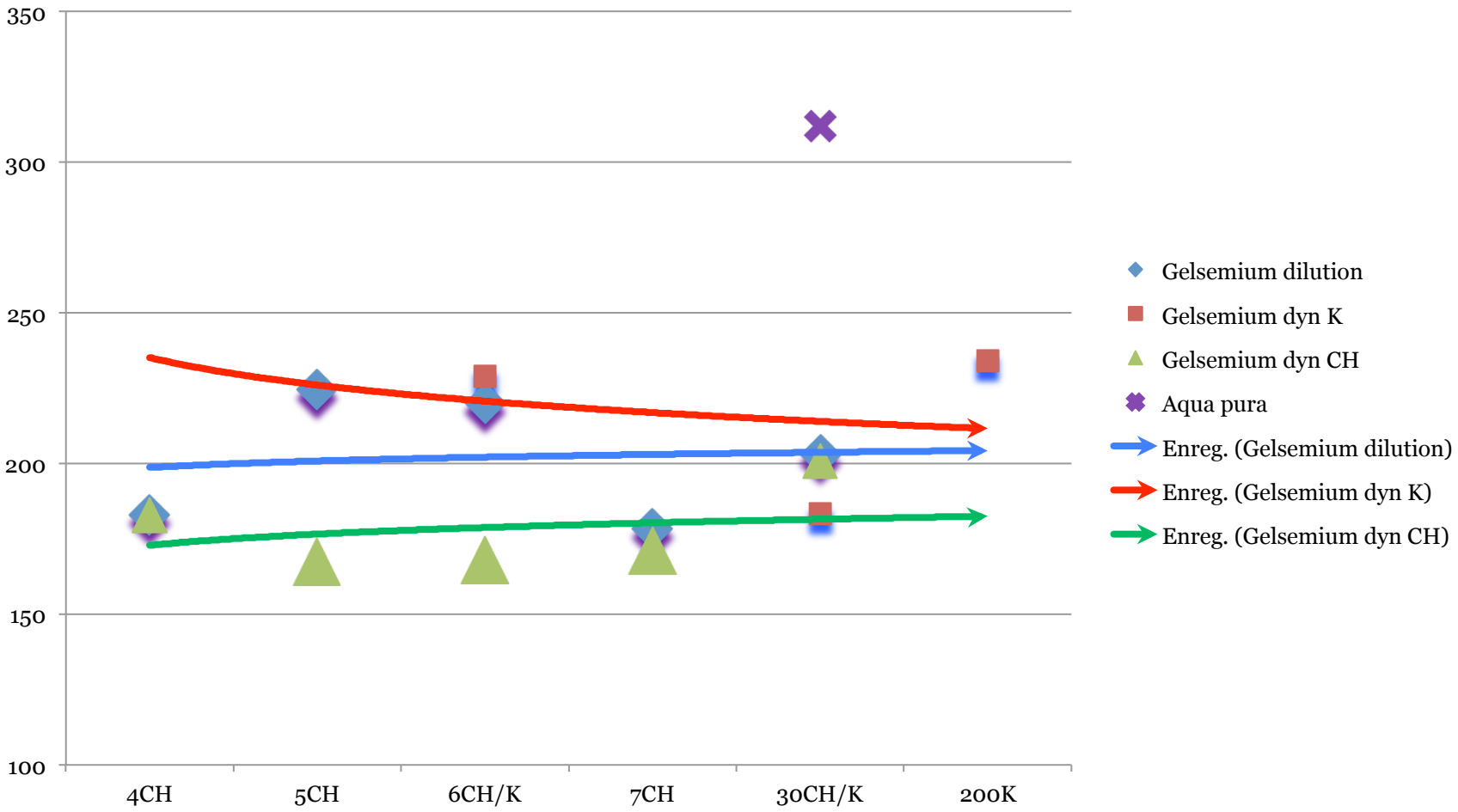


# Mean particules sizes in nanometers.
## (Gelsemium and controls).



# Particules sizes distribution (D90) in nanometers.

## (Gelsemium)



## NTA : Nanoparticle Tracking Analysis


- Conclusions.
- Particles exist even in highest dilutions but in very low quantities in a relatively stable concentration.
- Compared with a metal or potentized water control in glass containers, the concentration of particles is similar in all samples. Only for K potencies is the amount of detectable particles higher.
- There is a clear difference for all aspects between potentized Gelsemium and potentized water control prepared in PET containers.
- This PET water control is at the limit of the NTA methodology, the visualized particles are considered here as non-homogenous artefacts.
- The nature of the particles needs further identification by SEM/EDS.

# Lyophilisation process

- **Gelsemium sempervirens**

**SEM/EDX = Scanning Electron Microscopy with X-ray microanalysis.**

**Starting from 400cc (20 x 20cc 4CH samples), lyophilized (concentrated) we are able to identify these particles. 200cc of 200K and 30CH, contains also particles !**

# SEM/EDX

- **Gelsemium sempervirens**


Solution frozen to -120°C

500cc glass ball, negative pressure

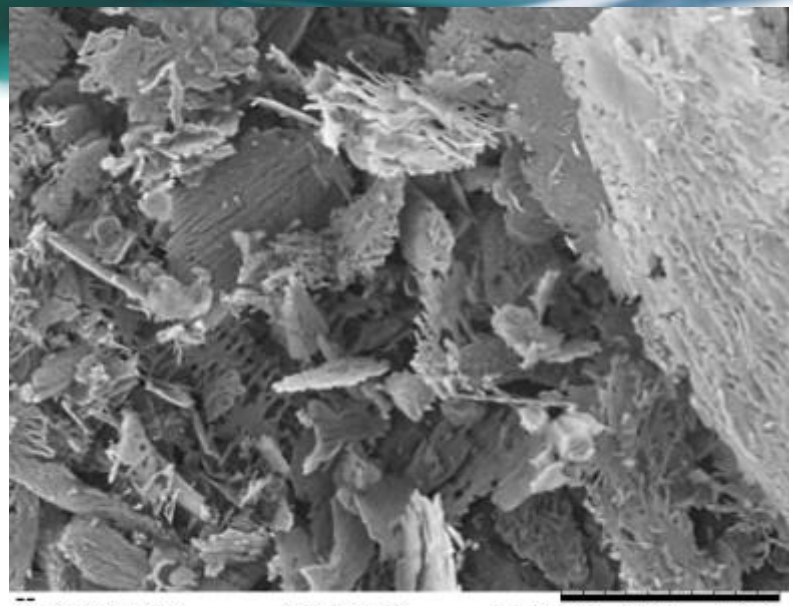
Slowly coming back at room C°.

Process repeated several times

Residual material collected & weighted.

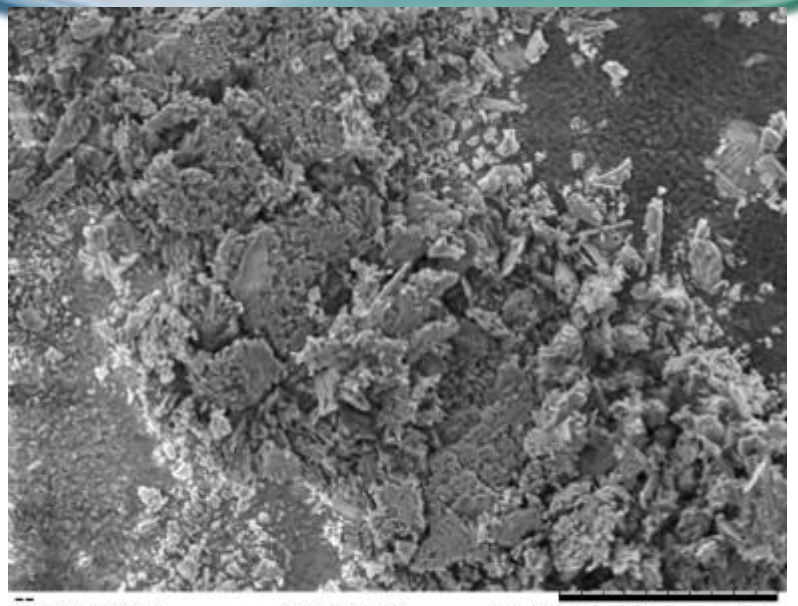
# Quantities on obtained dry lyophilized material

| | Uncertainty/g* | Gelsemine /g | Real dry material/g |
|---|---|---|---|
| **MT** | | 360.200µg +/- 0,3 | |
| **1 D** | +/- $3x10^{-9}$ | 116.100µg +/- 1,7 | |
| **2 D** | +/- $3x10^{-9}$ | 16.500µg +/- 1,5 | |
| **3 D** | +/- $3x10^{-9}$ | 1.440µg +/- 2,2 | |
| **4 D** | +/- $3x10^{-9}$ | 115µg +/- 2,8 | |
| **5 D** | +/- $3x10^{-9}$ | 10,76µg +/- 11,2 | |
| **6 D (3C)** | +/- $3x10^{-9}$ | NQ (In theory +/-1µg) | |
| **4C** | +/- $3x10^{-9}$ | In theory +/-0,01µg | **0,042mg = 42µg** |
| **30C** | +/- $3x10^{-9}$ | In theory +/-$10^{-54}$µg | **0,036mg = 36 µg** |
| **200K** | +/- $3x10^{-9}$ | In theory +/-$10^{-396}$µg | **0,0305mg = 30,5 µg** |
| **Diluted $10^{-60}$** | +/- $3x10^{-9}$ | In theory +/-$10^{-54}$µg | **0,071mg = 71 µg** |
| **Pure aqua 30C** | +/- $3x10^{-9}$ | In theory +/-$10^{-54}$µg | **0,002mg = 2 µg** |
| **Cuprum 30C** | +/- $3x10^{-9}$ | In theory +/-$10^{-54}$µg | **0,001mg = 1 µg** |



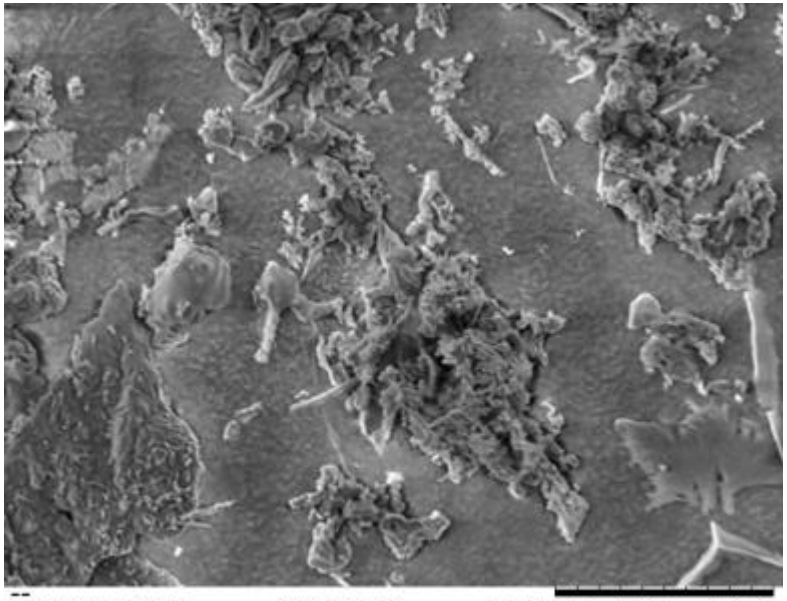
4CH GELS 0001 2016/11/29 I L UD8.2 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS



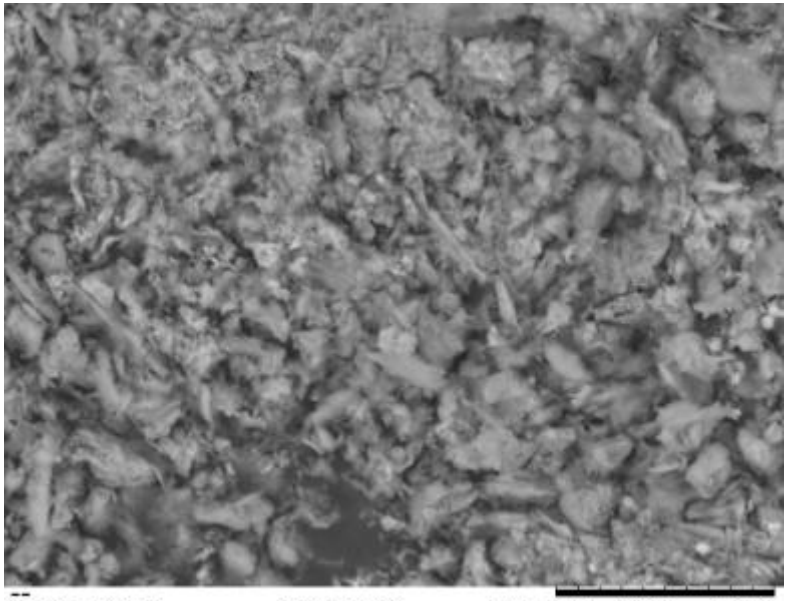
30C Gels 0001 2016/11/29 I L UD8.3 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS



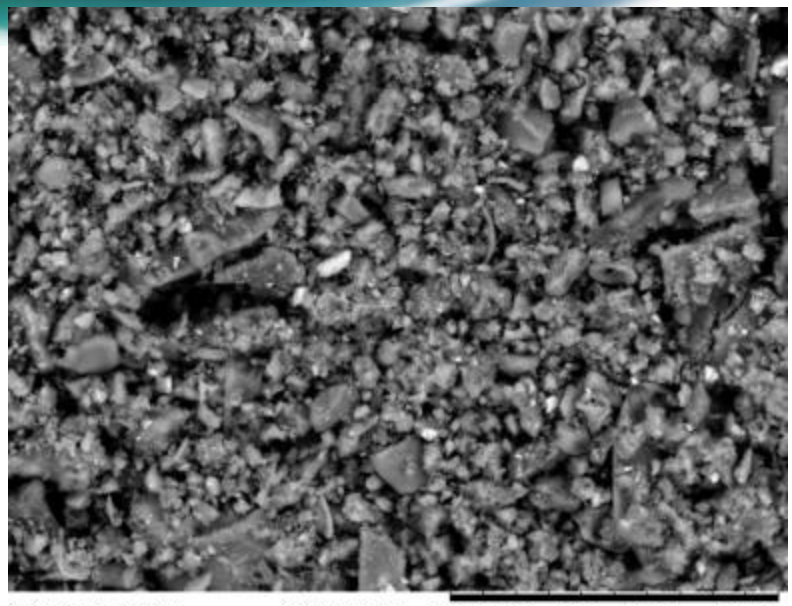
200K GELS 0001 2016/11/29 I L UD8.4 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS



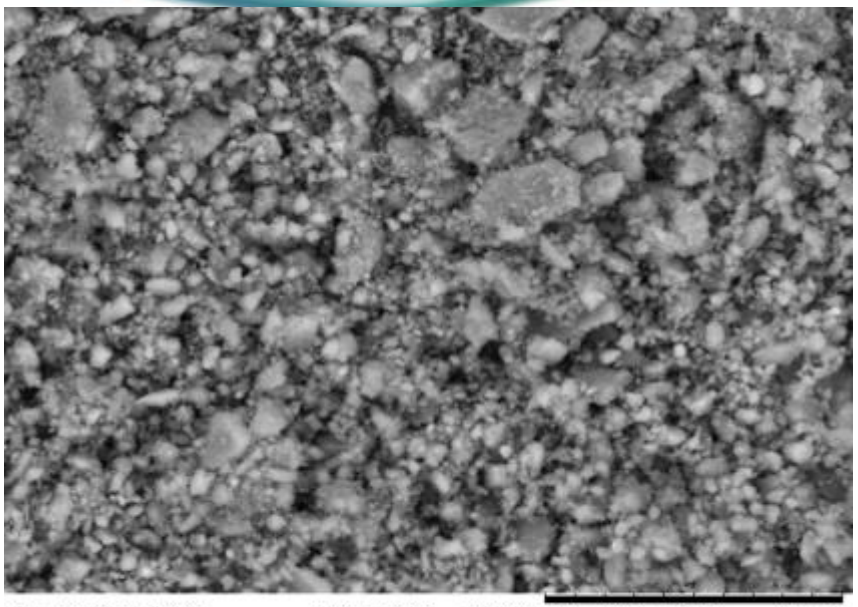
GELS -60 0001 2016/11/29 N M D8.3 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS



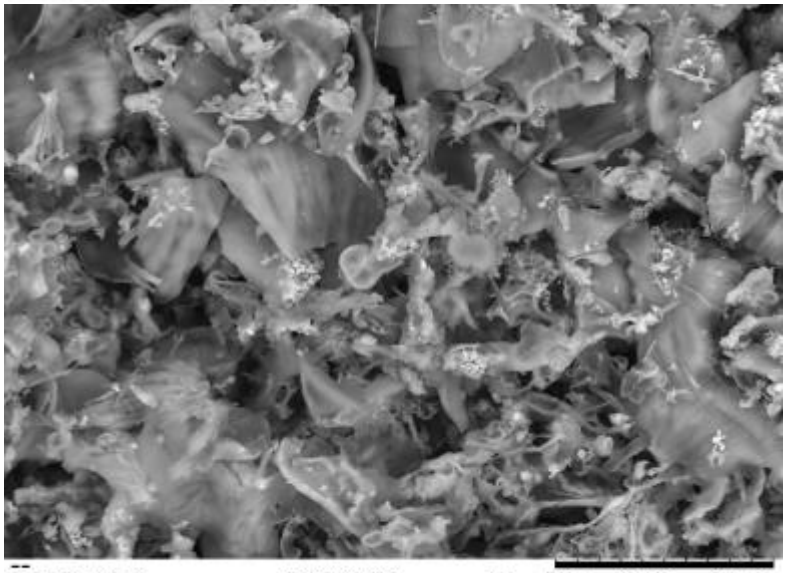
CUPR 30C 0000 2016/04/26 12:13 HM D8.0 x1.8k 50 µm

Hitachi TM3030PLUS Qrum30C



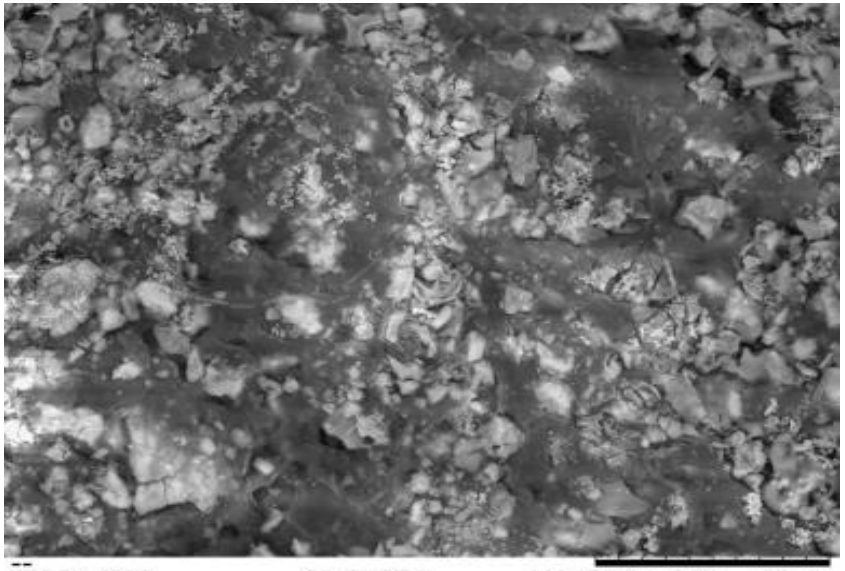
Aqua 30CH 0000 2016/04/26 12:28 HM D8.0 x2.5k 30 µm

SYSMEX-Hitachi TM3030PLUS



Si30CH 0000 2016/12/28 HL D8.1 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS



K30CH 0000 2016/12/28 HM D8.0 x2.0k 30 µm

SYSMEX-Hitachi TM3030PLUS

# SEM

- **Gelsemium sempervirens**

**Conclusions:**

- **Clearly it is possible, using this methodology, to differentiate visually Gelsemium sempervirens in several potentisations from controls or other remedies.**
- **CH and K preparations generate specific images.**
- **Quantities of collected material are much higher for plants than for metals or water control.**

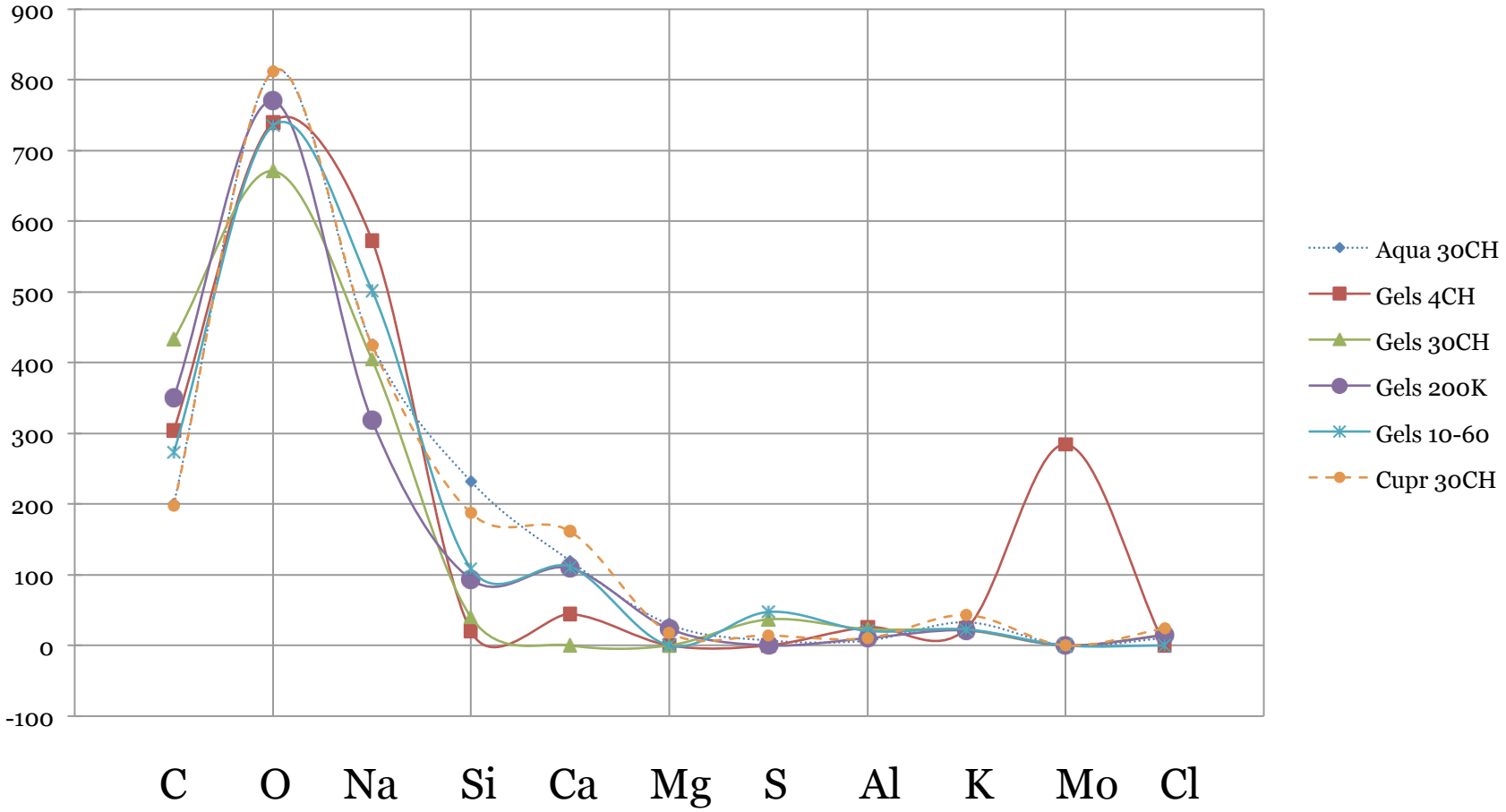
# EDX

- **Gelsemium sempervirens**

**EDX =**

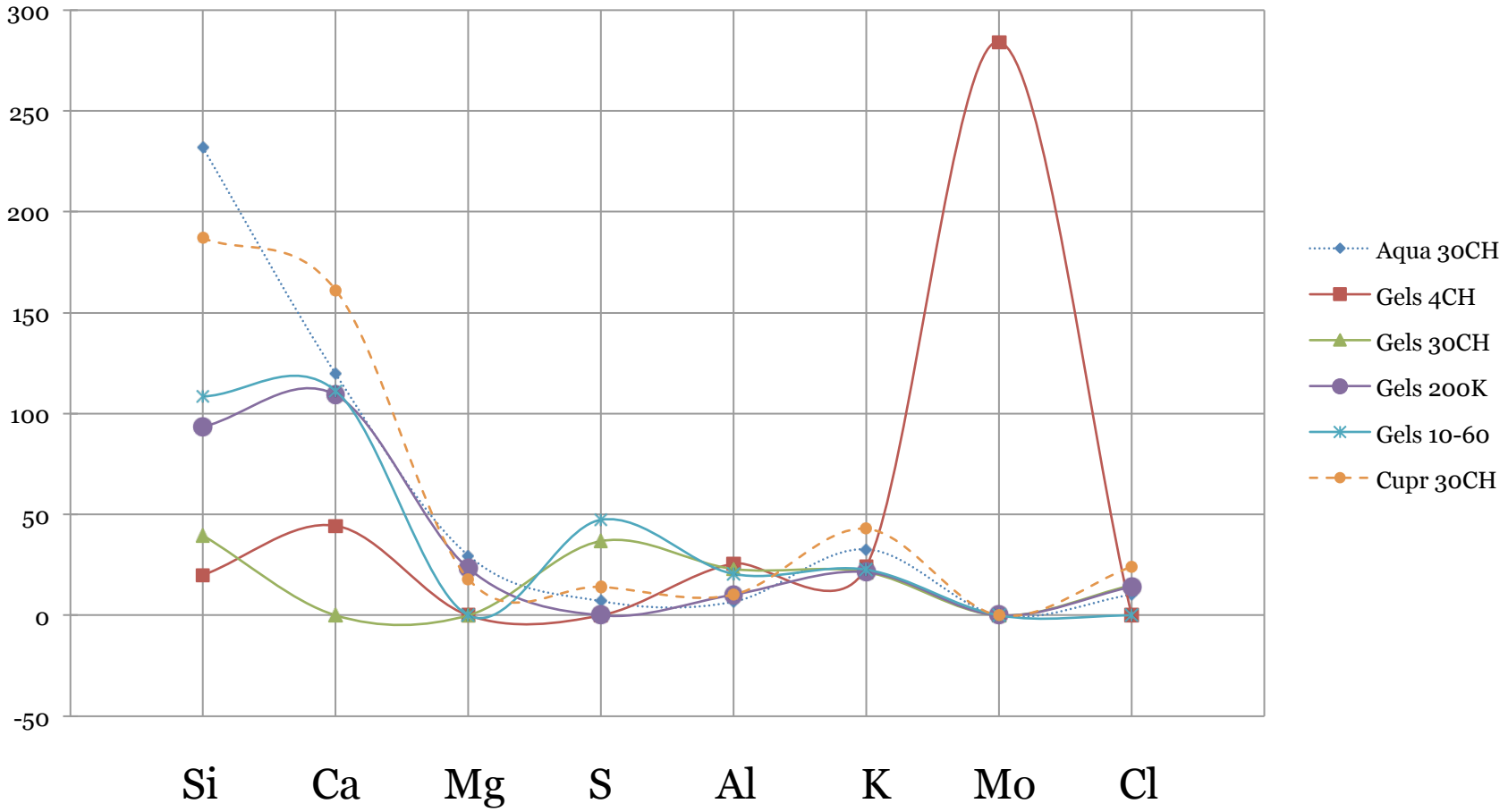
**Electron Microscopy with X-ray microanalysis is allowing the chemical analyze of the observed material.**

## Identified chemistry in dilutions/potentizations (atom% * atomic mass * µg quantity)




*There is a clear difference in chemistry between the different samples. The proportion of Carbon, Oxygen, Sodium are always high, Silicium and Calcium are also good discriminant factors. Molybden is a specific compound of plant roots.*

## Identified chemistry in dilutions/potentizations (atom% * atomic mass * µg quantity)

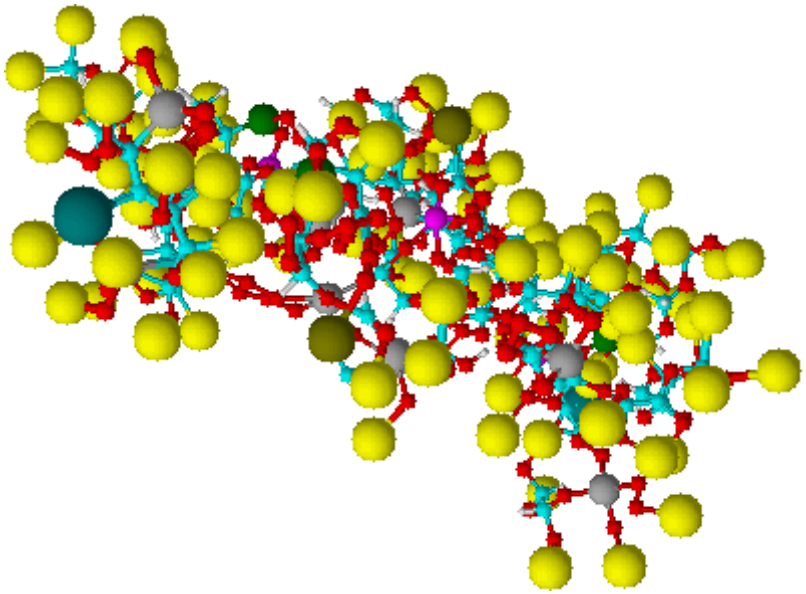



*There is a clear difference in chemistry between the different samples. The proportion of Carbon, Oxygen, Sodium are always high, Silicium and Calcium are also good discriminant factors. Molybden is a specific compound of plant roots.*

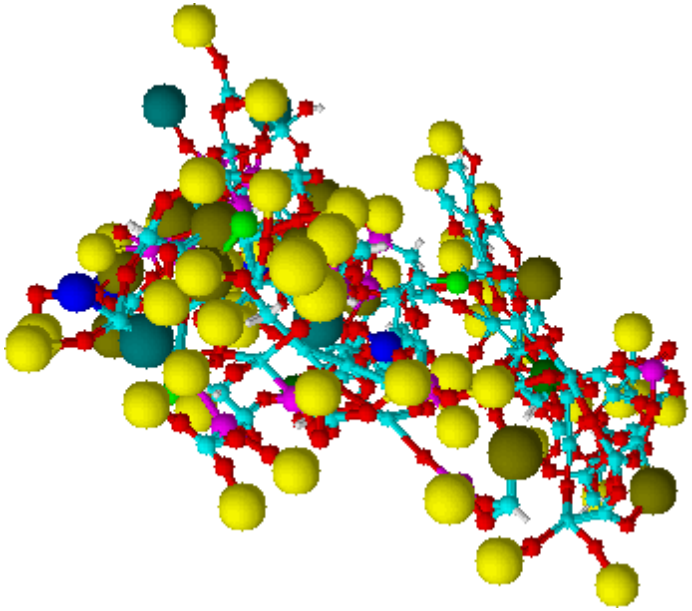
# Possible modelisation of these particles (100 smaller than in reality)

**Yellow = Na**; Red = O; Magenta = Si; Blue = C; **Grey = Ca**; White = H.

Gelsemium 4CH



Gelsemium 200K



**More compact model if Si/C decreases.**

# Conclusions SEM/EDX (1)

- For Cuprum 30C, the number of particles was comparable but only 1 µg/g was collected (40 times lower than in Gelsemium 30C).
- The presence of this material demonstrate that the used step by step process (dynamized or not) is not a simple dilution process.
- The lyophilized dry material obtained from Gelsemium 4C, 30C, 200K, dilution $10^{-60}$, Cuprum 30C and Water 30C observed by SEM/EDS, allowing a detailed view of the obtained lyophilized dry material, produce remarkable images.

# Conclusions SEM/EDX (2)

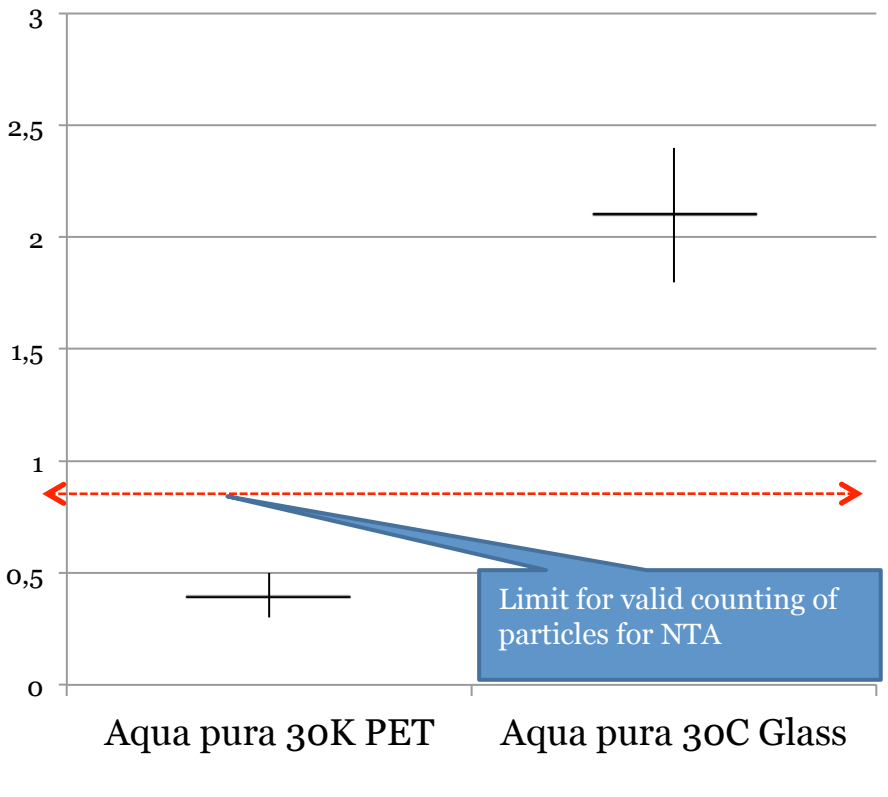
- If we compare the nature of the material, the diversity of shapes is the most complex in the 4C but can also be found in Gelsemium 30C and 200K. The shapes are also easily discriminated from simply diluted Gelsemium $10^{-60}$, potentized coper or Kalium muriaticum 30C or potentized water 30C materials.
- The chemistry of the materials, determined by EDS, shows that this material is not composed of all original molecular compounds of the MT. Example : already in Gels 4C, no nitrogen found, meaning absence of specific Gelsemium alkaloids. There is a specific composition for each of the samples. The proportion of the different atoms results in a specific chemical profile.

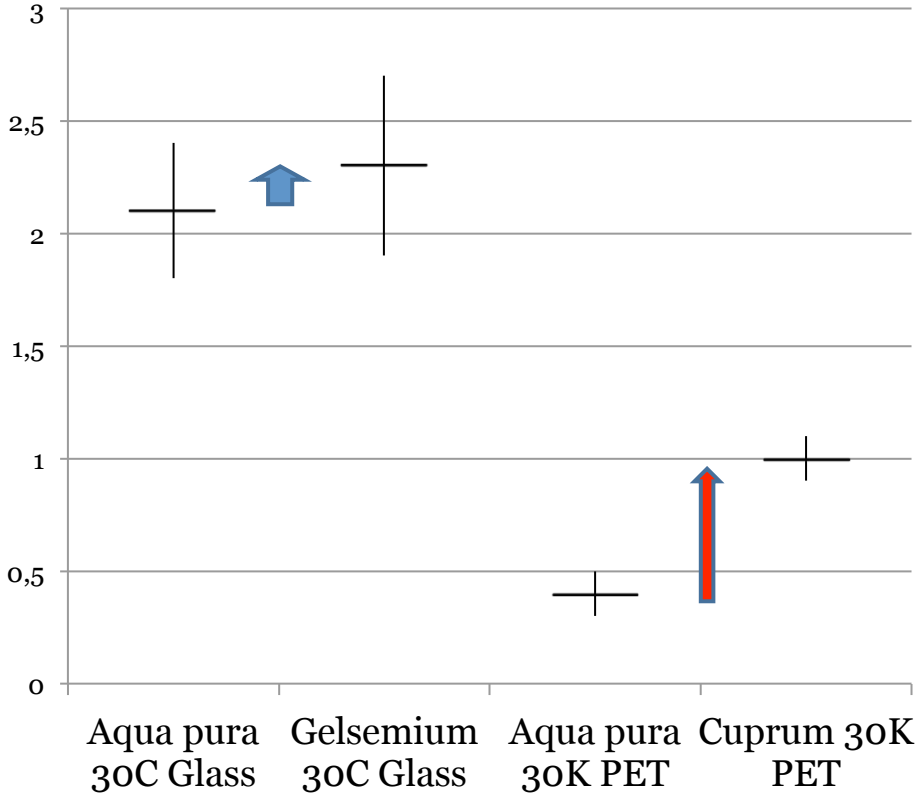
# Conclusions SEM/EDX (3)

- The Molybdenum identified in Gelsemium 4C is an original component of the MT. This atom was not found in the other samples, excluding an involvement of glass containers. It is part of the xanthine oxidase, enzyme largely expressed in the roots of plants.
- Because of the absence of any particles in the used deionized pure water (NTA), the presence of these atoms can only be justified by an interaction between the original stock, the used glass containers and the deionized water.

# Conclusions SEM/EDX (4)

- A simple dilution is not a potentization and a difference exists between the C, K potentization processes and controls.
- When using PET containers for the potentization of Aqua pura 30K no significant particles can be observed. Nevertheless, for the potentized Cuprum metallicum 30K also in PET container, particles are observed
- This fact confirms the role of the stock during the potentization process.



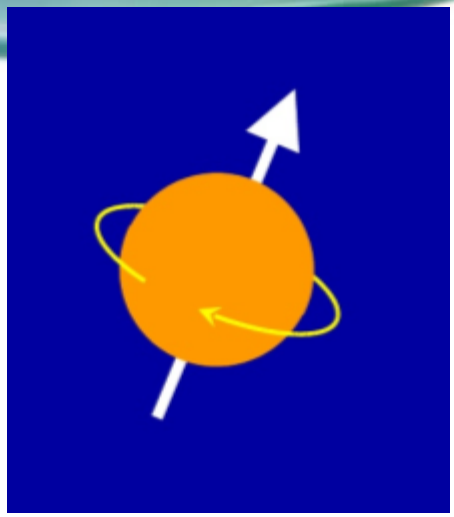




**Established differences between measurements using glass or PET containers for the preparations.**

# A comprehensive approach

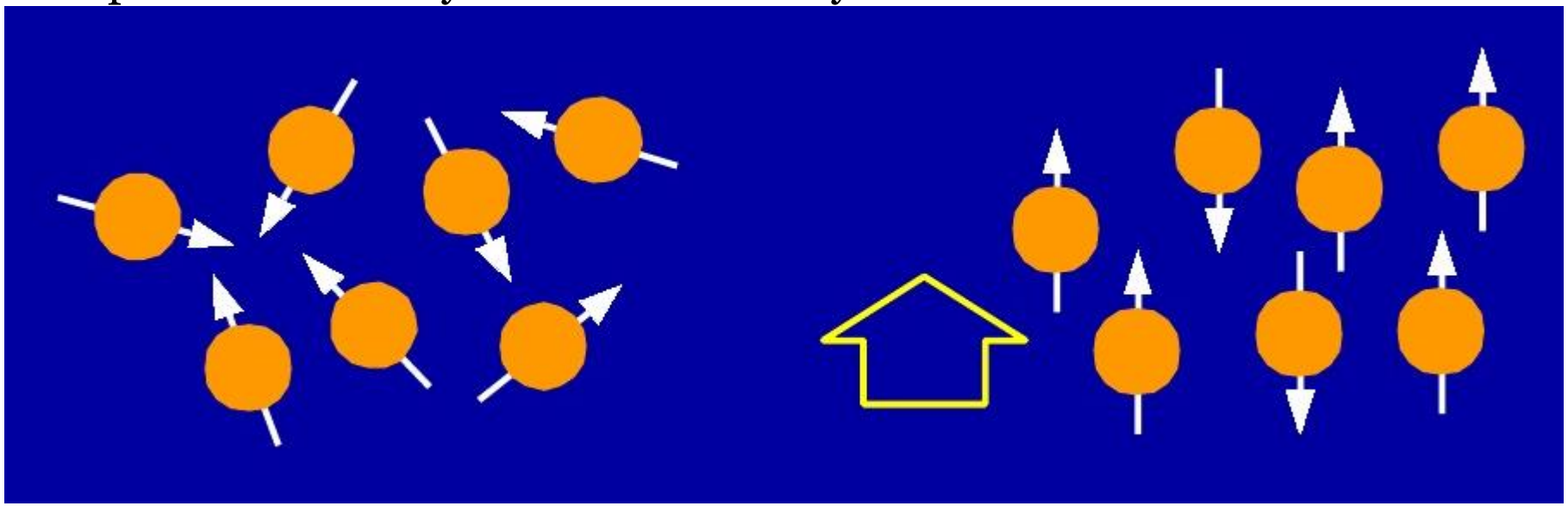
- ✓ Nano particles search
- ✓ **Solvent (water) behaviour**
- ✓ Electrons behaviour

# NMR

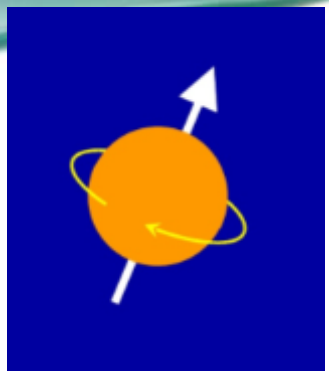


## What are we measuring ?

- Certain atomic nuclei including 1H exhibit nuclear magnetic resonance. Nuclear “spins” are like magnetic dipoles.
- Spins are normally oriented randomly.

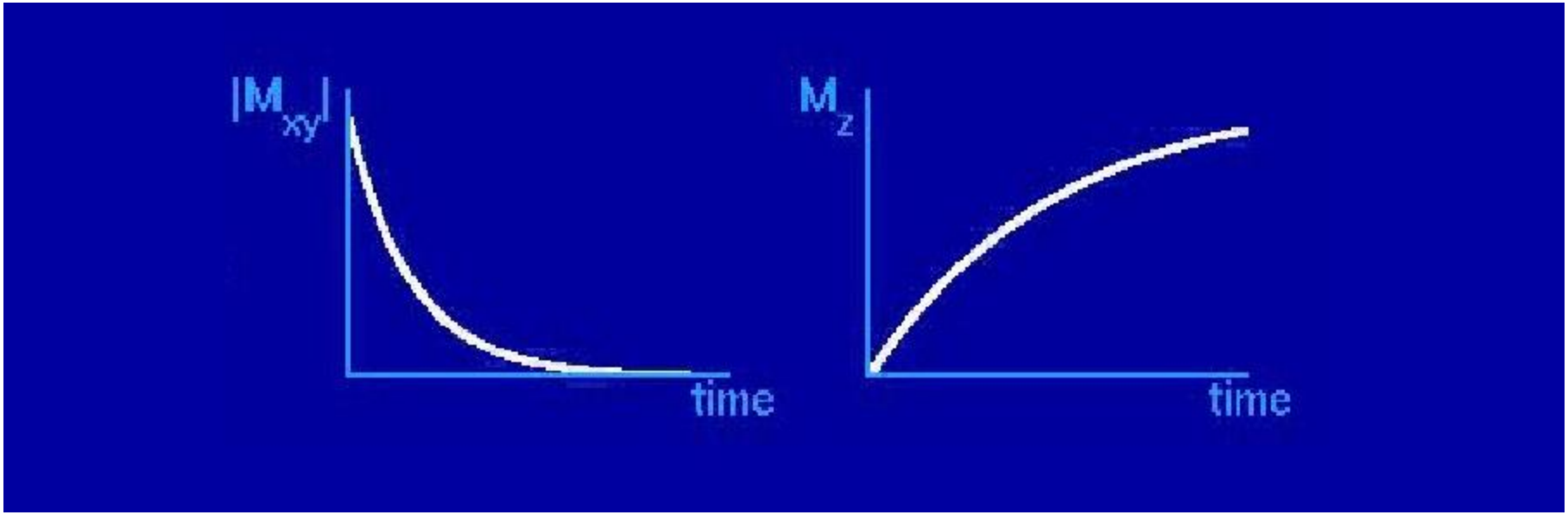


# NMR

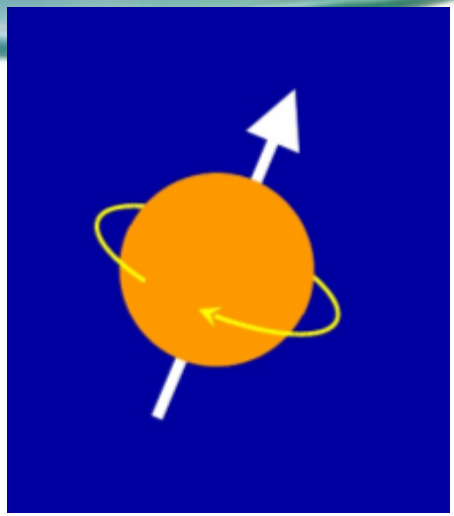


- Magnetization returns exponentially to equilibrium
- Longitudinal **recovery** time constant is T1 (spin-lattice relaxation time)
- Transverse **decay** time constant is T2 (spin-spin relaxation time)

**Decay** **Recovery**



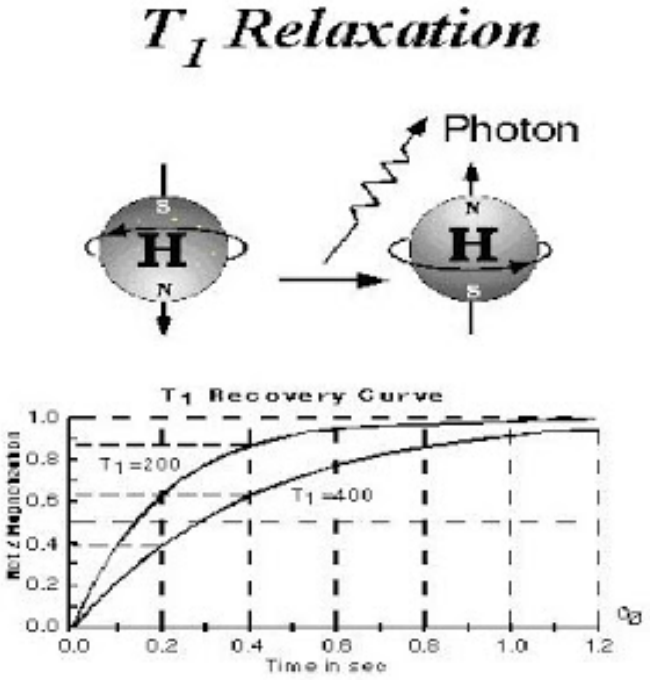
# NMR

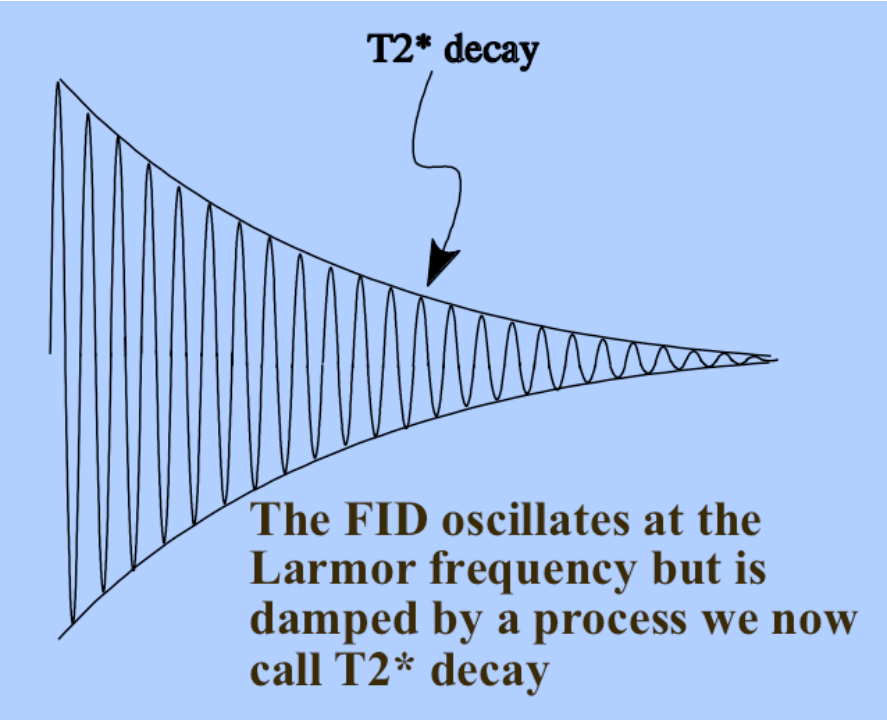


## What are we measuring ?

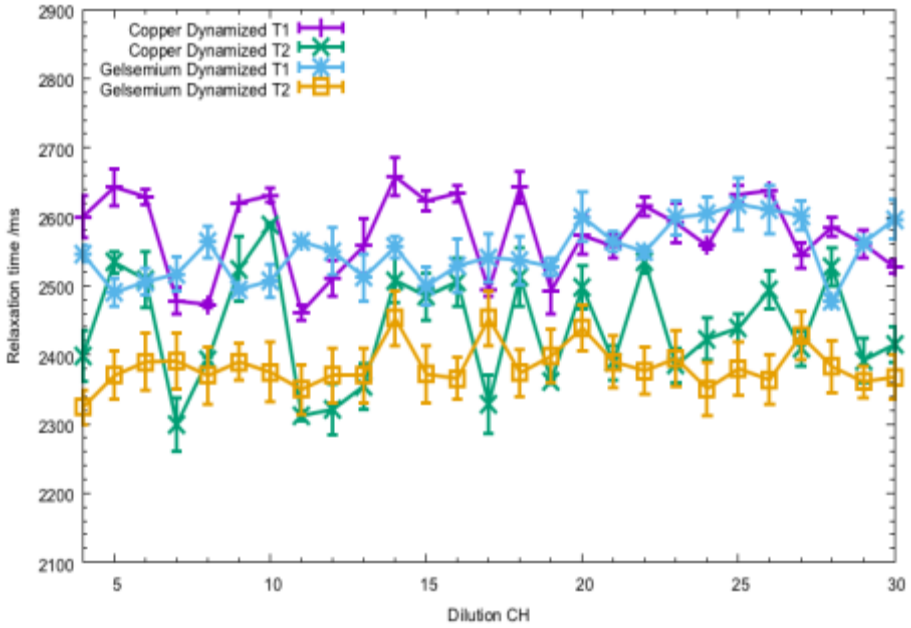
Measures “fixed” at 63% of final value.

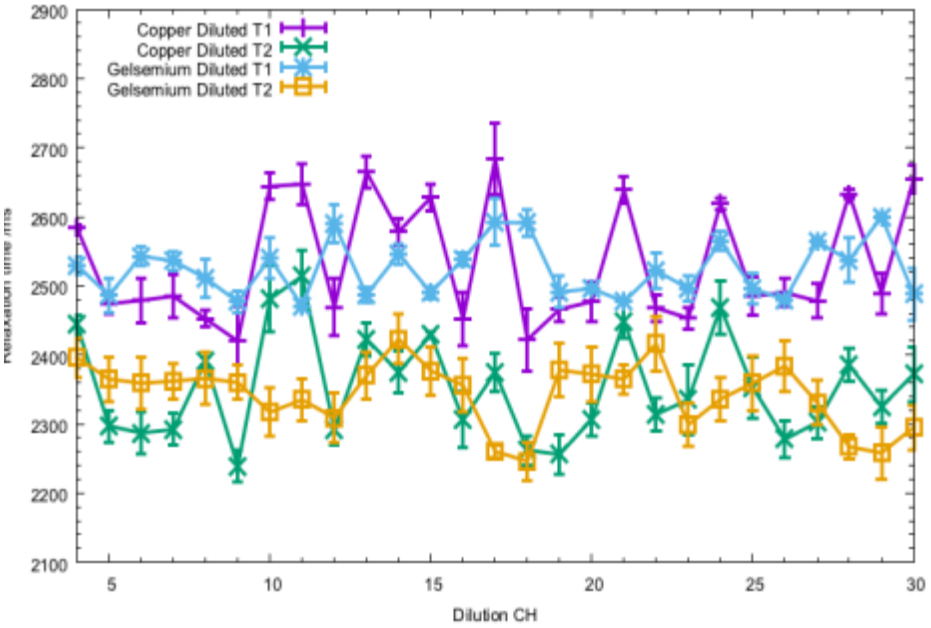
FID = free induction decay

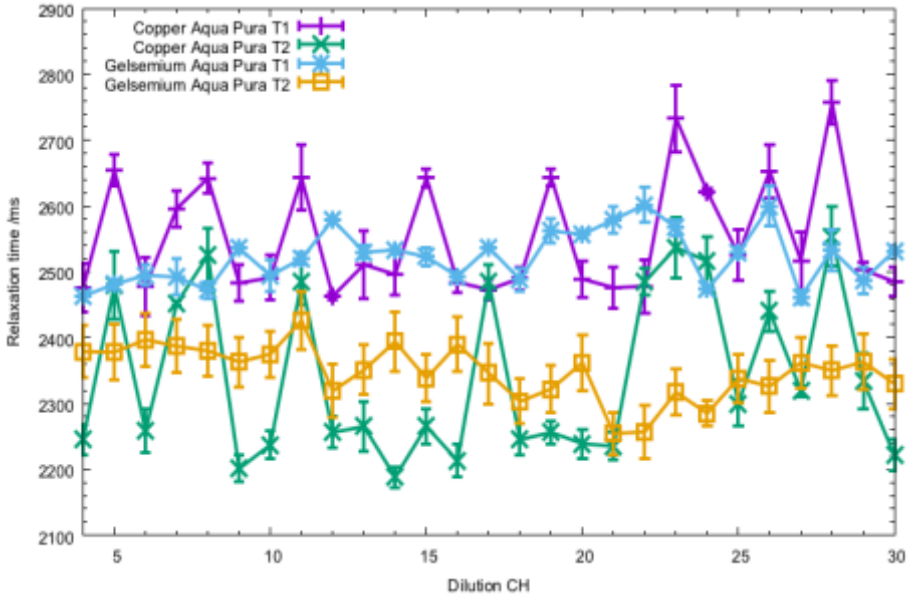


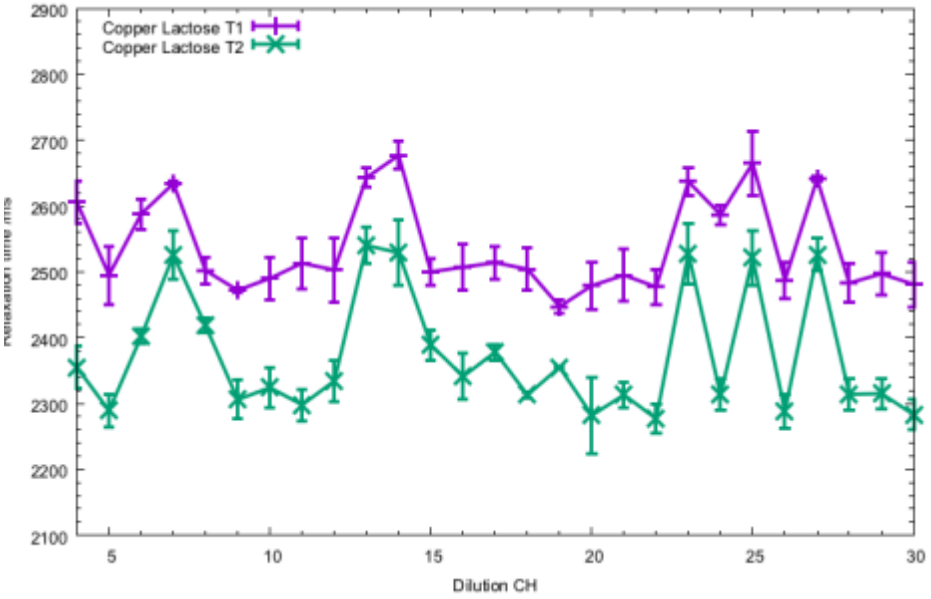



# NMR


Copper Dynamized T1
Copper Dynamized T2
Gelsemium Dynamized T1
Gelsemium Dynamized T2
Relaxation time /ms
Dilution CH

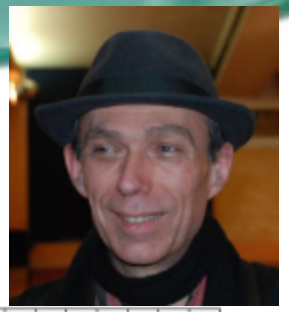

Copper Diluted T1
Copper Diluted T2
Gelsemium Diluted T1
Gelsemium Diluted T2
Dilution CH


Copper Aqua Pura T1
Copper Aqua Pura T2
Gelsemium Aqua Pura T1
Gelsemium Aqua Pura T2
Relaxation time /ms
Dilution CH

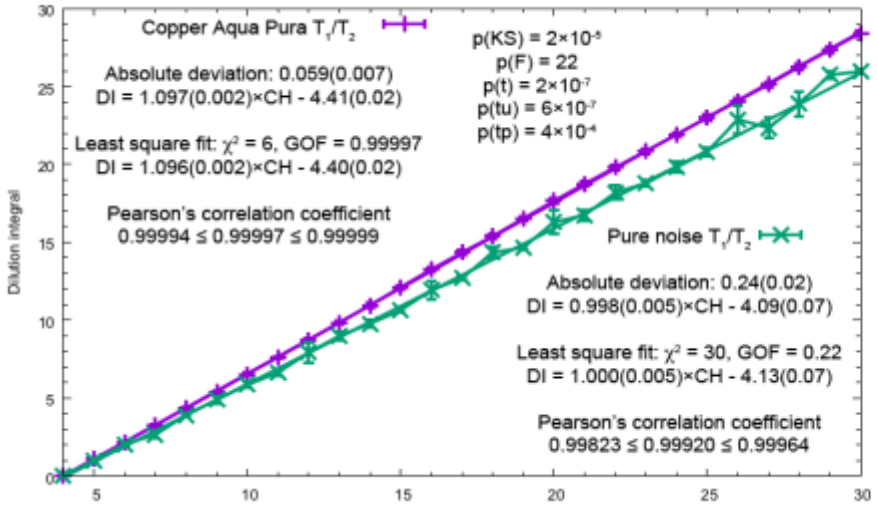

Copper Lactose T1
Copper Lactose T2
Dilution CH

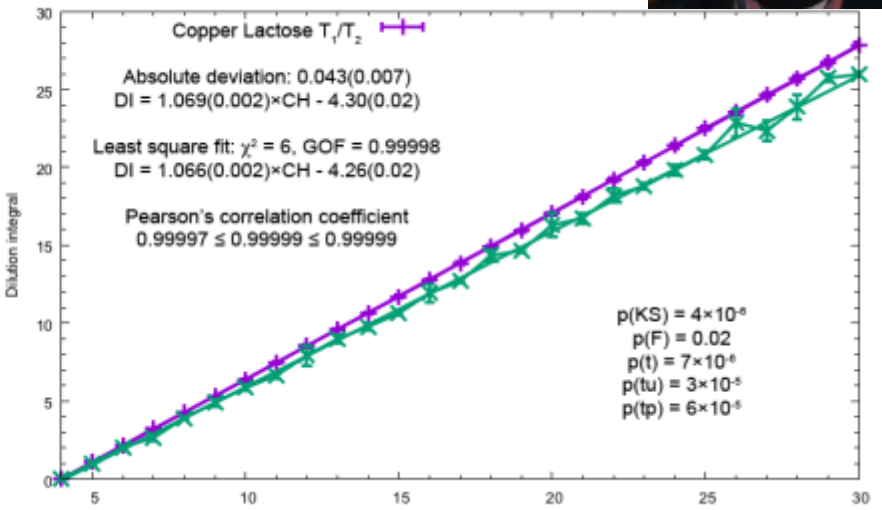
## NMR

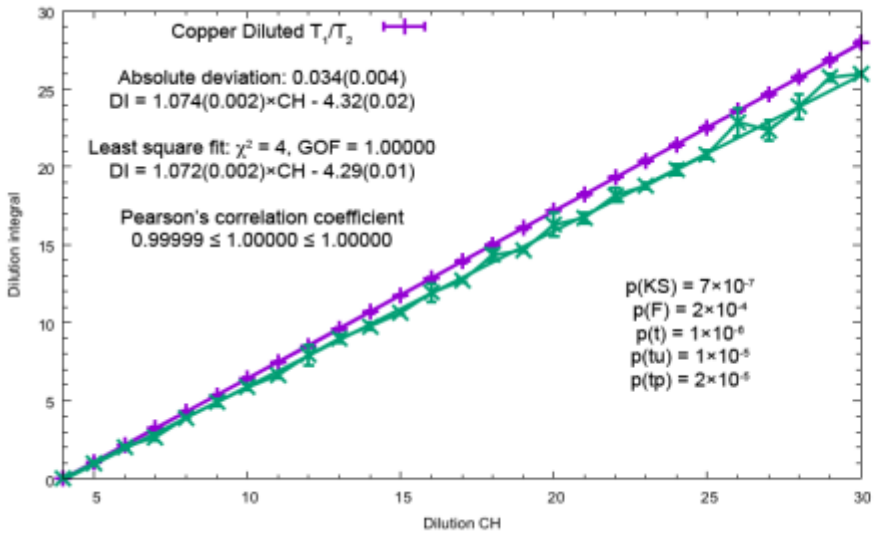
After these measurements a question arised : **« Are these values specific and as such allowing to discriminate the medicines between each other or are they aleatory values? »**. To answer this question, statistical analyses are needed.

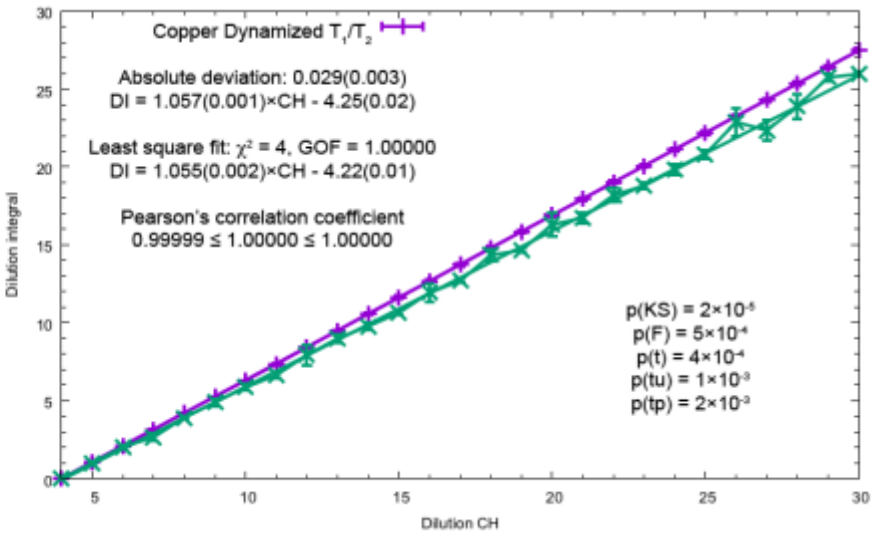


# NMR

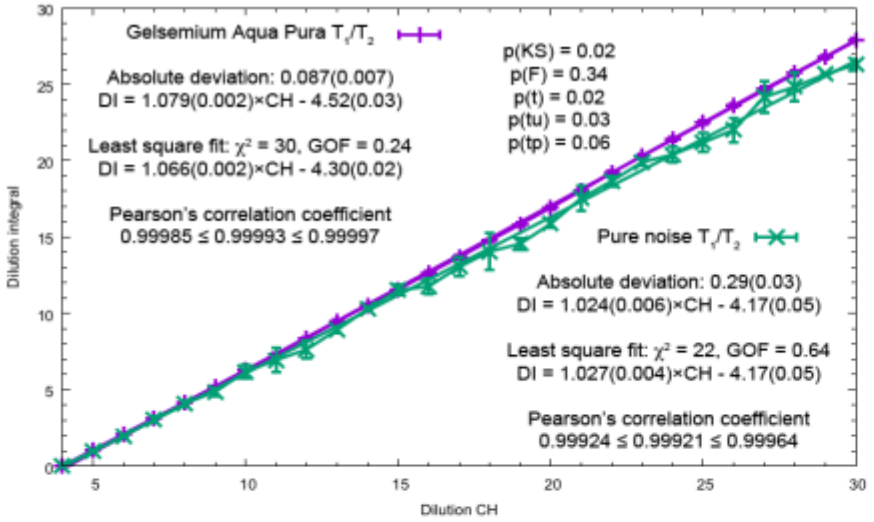

Copper Aqua Pura $T_1/T_2$
Absolute deviation: 0.059(0.007)
DI = 1.097(0.002)×CH - 4.41(0.02)
Least square fit: $\chi^2$ = 6, GOF = 0.99997
DI = 1.096(0.002)×CH - 4.40(0.02)
Pearson's correlation coefficient
0.99994 ≤ 0.99997 ≤ 0.99999
p(KS) = 2×10⁻⁵
p(F) = 22
p(t) = 2×10⁻⁷
p(tu) = 6×10⁻⁷
p(tp) = 4×10⁻⁴
Pure noise $T_1/T_2$
Absolute deviation: 0.24(0.02)
DI = 0.998(0.005)×CH - 4.09(0.07)
Least square fit: $\chi^2$ = 30, GOF = 0.22
DI = 1.000(0.005)×CH - 4.13(0.07)
Pearson's correlation coefficient
0.99823 ≤ 0.99920 ≤ 0.99964
Dilution integral

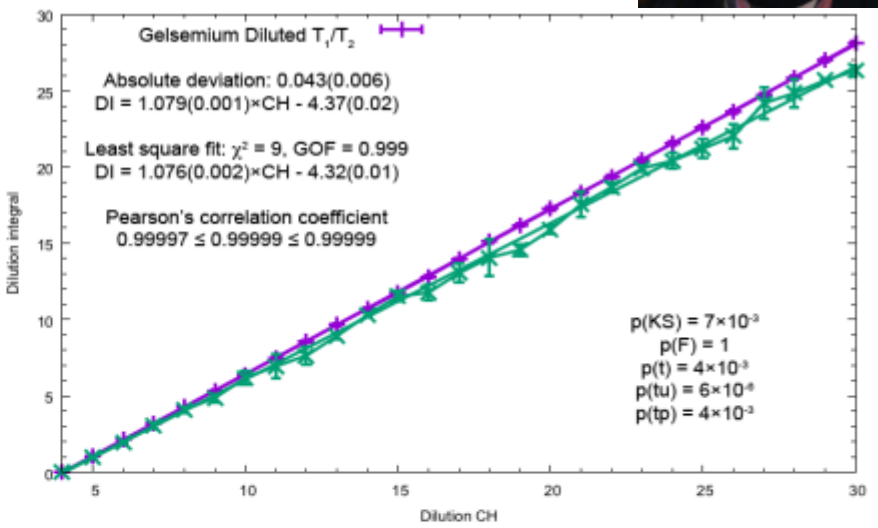

Copper Lactose $T_1/T_2$
Absolute deviation: 0.043(0.007)
DI = 1.069(0.002)×CH - 4.30(0.02)
Least square fit: $\chi^2$ = 6, GOF = 0.99998
DI = 1.066(0.002)×CH - 4.26(0.02)
Pearson's correlation coefficient
0.99997 ≤ 0.99999 ≤ 0.99999
p(KS) = 4×10⁻⁶
p(F) = 0.02
p(t) = 7×10⁻⁶
p(tu) = 3×10⁻⁵
p(tp) = 6×10⁻⁵
Dilution integral

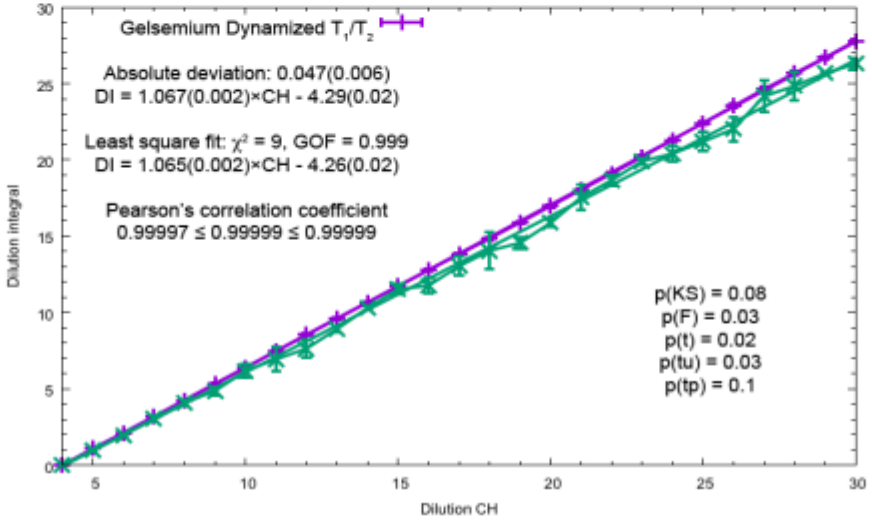

Copper Diluted $T_1/T_2$
Absolute deviation: 0.034(0.004)
DI = 1.074(0.002)×CH - 4.32(0.02)
Least square fit: $\chi^2$ = 4, GOF = 1.00000
DI = 1.072(0.002)×CH - 4.29(0.01)
Pearson's correlation coefficient
0.99999 ≤ 1.00000 ≤ 1.00000
p(KS) = 7×10⁻⁷
p(F) = 2×10⁻⁴
p(t) = 1×10⁻⁶
p(tu) = 1×10⁻⁵
p(tp) = 2×10⁻⁵
Dilution integral
Dilution CH

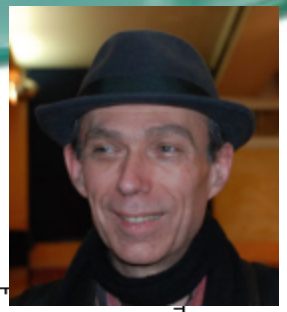

Copper Dynamized $T_1/T_2$
Absolute deviation: 0.029(0.003)
DI = 1.057(0.001)×CH - 4.25(0.02)
Least square fit: $\chi^2$ = 4, GOF = 1.00000
DI = 1.055(0.002)×CH - 4.22(0.01)
Pearson's correlation coefficient
0.99999 ≤ 1.00000 ≤ 1.00000
p(KS) = 2×10⁻⁵
p(F) = 5×10⁻⁴
p(t) = 4×10⁻⁴
p(tu) = 1×10⁻³
p(tp) = 2×10⁻³
Dilution integral
Dilution CH

# NMR

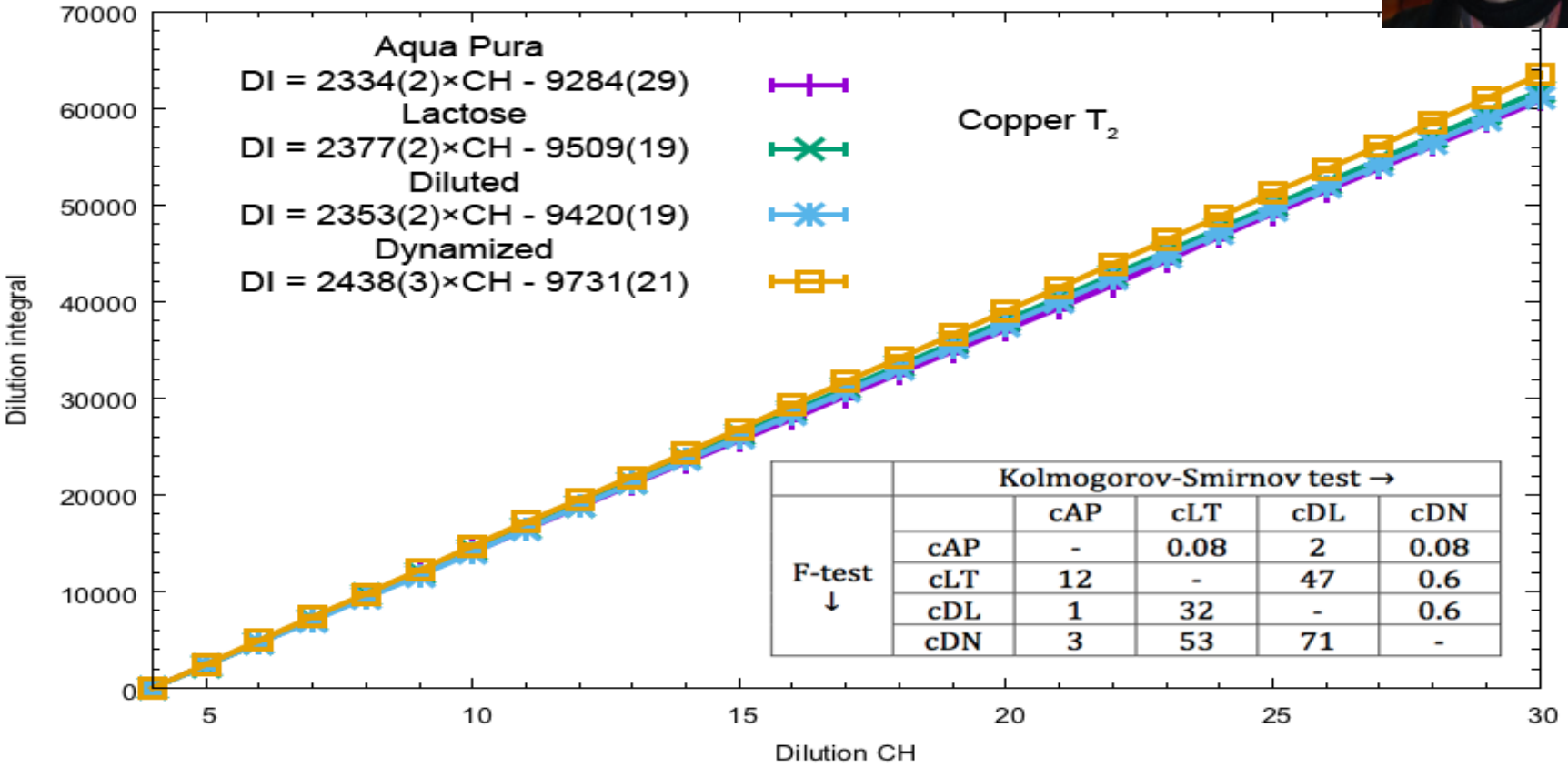

Gelsemium Aqua Pura $T_1/T_2$
Absolute deviation: 0.087(0.007)
DI = 1.079(0.002)×CH - 4.52(0.03)
Least square fit: $\chi^2$ = 30, GOF = 0.24
DI = 1.066(0.002)×CH - 4.30(0.02)
Pearson's correlation coefficient
0.99985 ≤ 0.99993 ≤ 0.99997
p(KS) = 0.02
p(F) = 0.34
p(t) = 0.02
p(tu) = 0.03
p(tp) = 0.06
Pure noise $T_1/T_2$
Absolute deviation: 0.29(0.03)
DI = 1.024(0.006)×CH - 4.17(0.05)
Least square fit: $\chi^2$ = 22, GOF = 0.64
DI = 1.027(0.004)×CH - 4.17(0.05)
Pearson's correlation coefficient
0.99924 ≤ 0.99921 ≤ 0.99964
Dilution integral
Dilution CH


Gelsemium Diluted $T_1/T_2$
Absolute deviation: 0.043(0.006)
DI = 1.079(0.001)×CH - 4.37(0.02)
Least square fit: $\chi^2$ = 9, GOF = 0.999
DI = 1.076(0.002)×CH - 4.32(0.01)
Pearson's correlation coefficient
0.99997 ≤ 0.99999 ≤ 0.99999
p(KS) = 7×10⁻³
p(F) = 1
p(t) = 4×10⁻³
p(tu) = 6×10⁻⁶
p(tp) = 4×10⁻³
Dilution integral
Dilution CH


Gelsemium Dynamized $T_1/T_2$
Absolute deviation: 0.047(0.006)
DI = 1.067(0.002)×CH - 4.29(0.02)
Least square fit: $\chi^2$ = 9, GOF = 0.999
DI = 1.065(0.002)×CH - 4.26(0.02)
Pearson's correlation coefficient
0.99997 ≤ 0.99999 ≤ 0.99999
p(KS) = 0.08
p(F) = 0.03
p(t) = 0.02
p(tu) = 0.03
p(tp) = 0.1
Dilution integral
Dilution CH



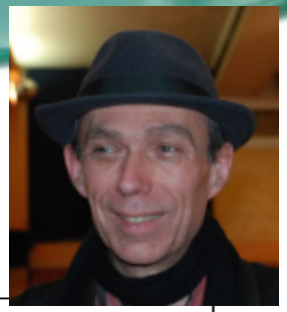
# NMR



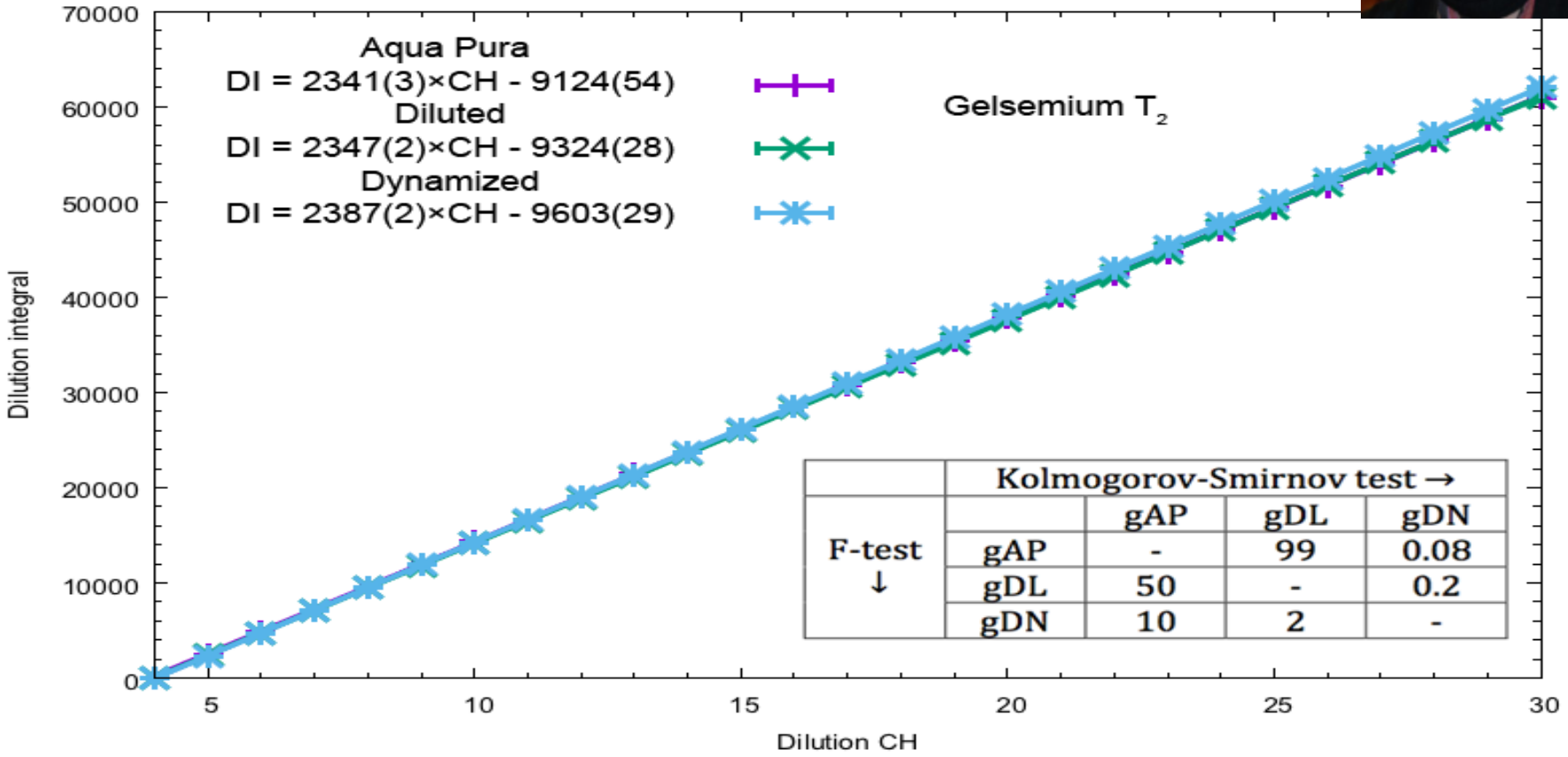

| | Kolmogorov-Smirnov test → | | | |
|---|---|---|---|---|
| F-test ↓ | cAP | cLT | cDL | cDN |
| cAP | - | 0.08 | 2 | 0.08 |
| cLT | 12 | - | 47 | 0.6 |
| cDL | 1 | 32 | - | 0.6 |
| cDN | 3 | 53 | 71 | - |

| Student | t-test → | | | |
|---|---|---|---|---|
| tu-test ↓ | cAP | cLT | cDL | cDN |
| cAP | - | 32 | 68 | 0.2 |
| cLT | 32 | - | 42 | 0.7 |
| cDL | 68 | 42 | - | 0.02 |
| cDN | 0.2 | 0.7 | 0.02 | - |

| Student | tp-test → | | | |
|---|---|---|---|---|
| tp-test ↓ | cAP | cLT | cDL | cDN |
| cAP | - | 32 | 66 | 0.5 |
| cLT | 32 | - | 42 | 2 |
| cDL | 66 | 42 | - | 0.1 |
| cDN | 0.5 | 2 | 0.1 | - |



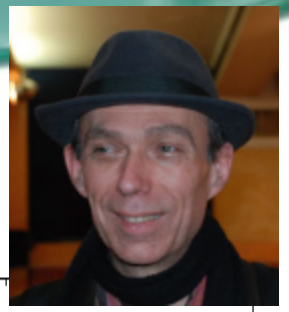
# NMR



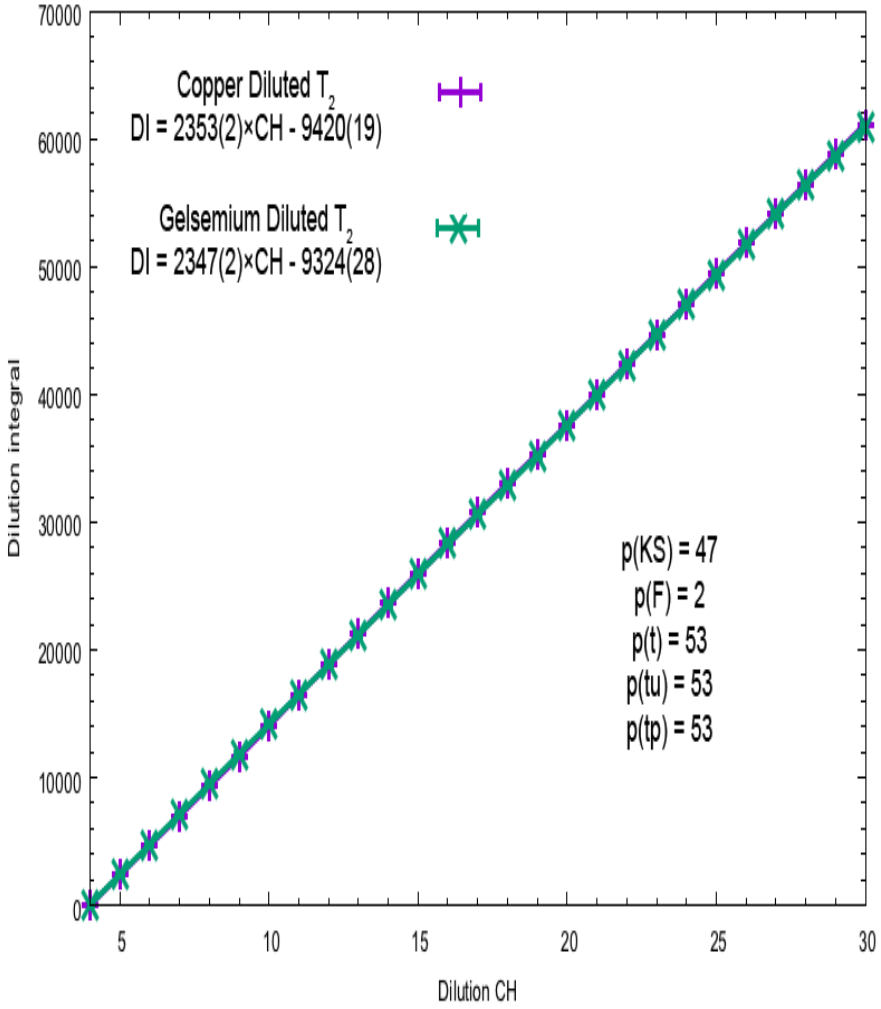

| | Kolmogorov-Smirnov test → | | | |
|---|---|---|---|---|
| F-test ↓ | | gAP | gDL | gDN |
| | gAP | - | 99 | 0.08 |
| | gDL | 50 | - | 0.2 |
| | gDN | 10 | 2 | - |

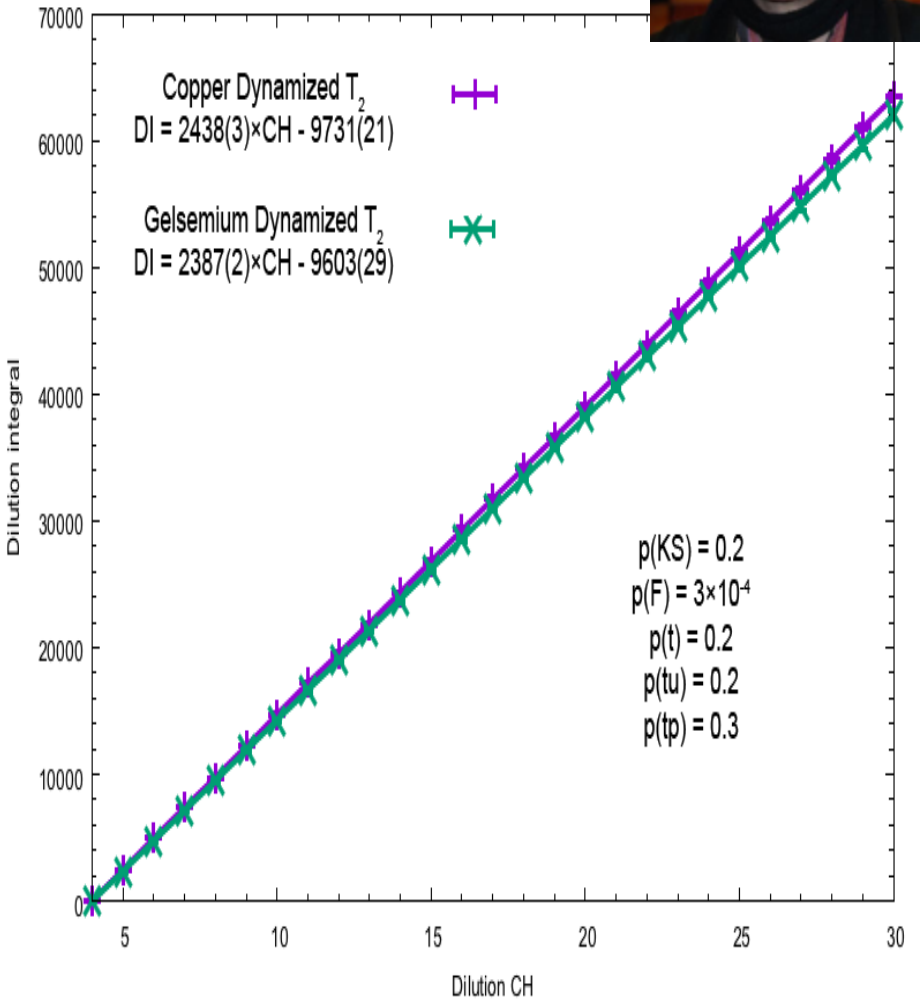
| Student | t-test → | | | |
|---|---|---|---|---|
| tu-test ↓ | | gAP | gDL | gDN |
| | gAP | - | 69 | 0.07 |
| | gDL | 69 | - | 0.04 |
| | gDN | 0.07 | 0.04 | - |

| Student | tp- test → | | | |
|---|---|---|---|---|
| tp-test ↓ | | gAP | gDL | gDN |
| | gAP | - | 68 | 0.1 |
| | gDL | 68 | - | 0.1 |
| | gDN | 0.1 | 0.1 | - |



# NMR


Copper Diluted $T_2$
DI = 2353(2)×CH - 9420(19)
Gelsemium Diluted $T_2$
DI = 2347(2)×CH - 9324(28)
p(KS) = 47
p(F) = 2
p(t) = 53
p(tu) = 53
p(tp) = 53
Dilution integral
Dilution CH
0
10000
20000
30000
40000
50000
60000
70000
5
10
15
20
25
30


Copper Dynamized $T_2$
DI = 2438(3)×CH - 9731(21)
Gelsemium Dynamized $T_2$
DI = 2387(2)×CH - 9603(29)
p(KS) = 0.2
p(F) = 3×10$^{-4}$
p(t) = 0.2
p(tu) = 0.2
p(tp) = 0.3
Dilution integral
Dilution CH
0
10000
20000
30000
40000
50000
60000
70000
5
10
15
20
25
30

# NMR Conclusions (1)

- NMR proton relaxation is sensitive to the dynamics of the water molecule $H_2O$ (solvent), through the interaction of the spin of the proton ($^1H$) with external magnetic and electromagnetic fields.
- This study confirms that it is possible to monitor dilution and potentization processes through measurements of $^1H$ spin-lattice $T_1$ and spin-spin $T_2$ relaxation times.
- In order to interpret the recorded fluctuations, experimental data have been linearized (dilution integral or DI). It was possible to show that such fluctuations cannot be attributed to random noise and/or experimental errors, evidencing a kind of memory effect that can be quantified.
- **All potentized samples show very good discrimination (at least nine-sigma level) against aqua pura, lactose or simple dilution.**

# NMR Conclusions (2)

- Our experiments points to a considerable **slowing down of molecular movements** around water molecules up to a distance of 3.7 Å, values. It was also possible to rule out other possible mechanisms of relaxation (diffusive motion, $^{17}O$-$^{1}H$ relaxation or coupling with the electronic spin, S = 1, of dissolved dioxygen molecules).
- This is clear evidence that homeopathic solutions **cannot be considered as pure water** as commonly assumed. Instead, we have evidence a clear memory effect upon dilution/potentization of a substance (water, lactose, copper, gelsemium) reflected by different rotational correlation times and average H…H distances.
- A possible explanation for such a memory effect may lie in the formation of mesoscopic **water structures around nanoparticles and/or nanobubbles** mediated by zero-point fluctuations of the vacuum electromagnetic field as suggested by quantum field theories.

# NMR Conclusions (3)

- It follows that the existence of a putative of **Avogadro's wall for homeopathically-prepared medicines is not supported by our data**. It should be rather considered that all dilutions may have a specific material configuration ruled not only by the potentized substance but also by the chemical nature of the containers, the chemical nature of dissolved gases and even by the electromagnetic environment.
- This sensitivity of homeopathically-prepared medicines towards electromagnetic fields may be amplified by the highly non-linear processing routinely applied in the preparation of homeopathic medicines.
- Future work is obviously needed in such directions, and we think that time is now ripe for a **complete demystification of the principles involved in the preparation of homeopathic remedies.**

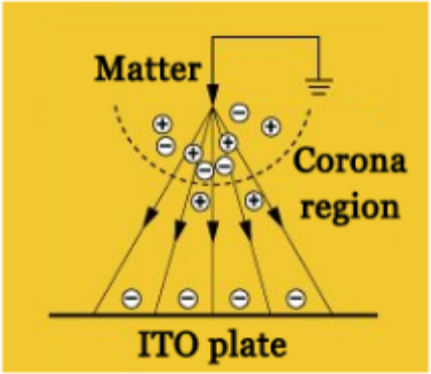
# A comprehensive approach

✓ Nano particles search

✓ Solvent (water) behaviour

✓ **Electrons behaviour**

# EPA

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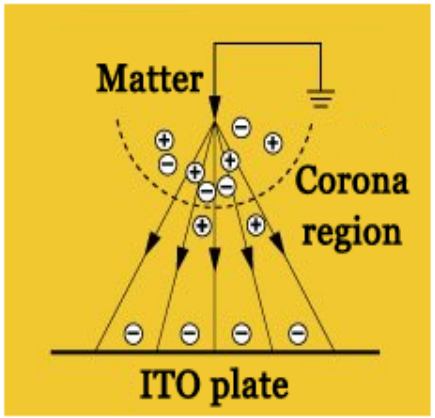
An electric field successively mobilizes electric charges at the surface and in the thickness of the object to be analyzed causing ionization of the gaseous environment around the studied body (plasma gas).
This ionization creates an electronic avalanche which, by splitting the gas molecules, release UV photons that are recorded by the camera.
All these phenomena don't appear simultaneously, but one after the other, depending on the pulse generator. Images acquisition provides an idea of the statistical distribution of light emission during exposure time. Numerous experiments have shown that charges are mainly distributed in two different ways:
– The positive pulses of the generator, leading to filamentary structures called "streamers".
– The negative pulses creating rounded and globular forms called "coronae".
These acquisitions allow appreciating the growing richness of the image depending as the complexity of the analyzed object increase.

# EPA

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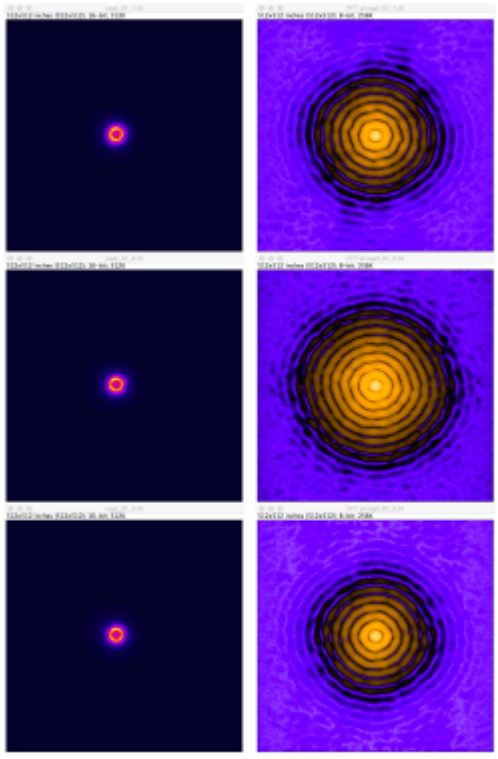
It is worth noticing that many environmental physical factors are to be taken into account in conducting electrophotonic experiments. Among them, we may cite: ambient atmosphere (gas), moisture (crucial factor for ionization), and dust (highly sensitive to electric fields).

| Date | 11/04/2016 | 12/04/2016 | 13/04/2016 | 14/04/2016 | 15/04/2016 |
|---|---|---|---|---|---|
| T /°C | 22 | 20-23 | 21-23 | 21-23 | 21-24 |
| R.H. % | 44-48 | 36-44 | 39-46 | 39-42 | 42-46 |

# EPA Pills



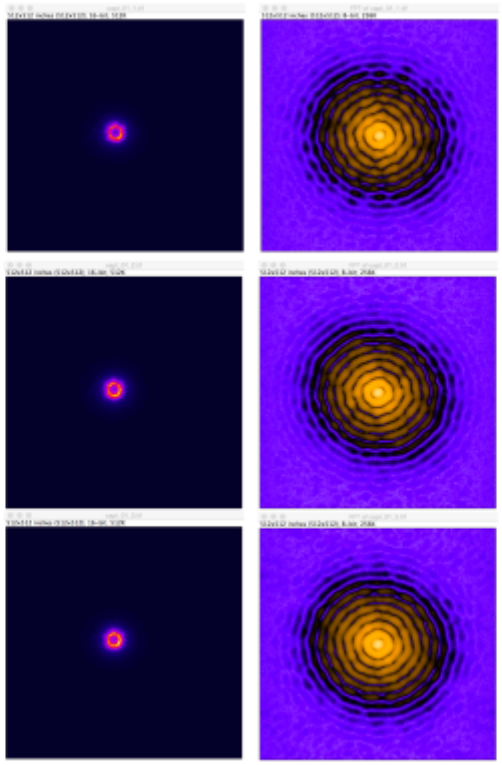
*Non Impregnated*

*Flask #11*

*Energy = 4 894*
*Contrast = 2 247*
*Entropy = 1.17906*
*Imin = 3*
*Imax = 255*
*nInt = 240*

*Energy = 4 702*
*Contrast = 2 195*
*Entropy = 1.16618*
*Imin = 3*
*Imax = 255*
*nInt = 236*

*Energy = 4 692*
*Contrast = 2 218*
*Entropy = 1.18833*
*Imin = 3*
*Imax = 255*
*nInt = 235*



*Impregnated pure solvent*

*Flask #196*

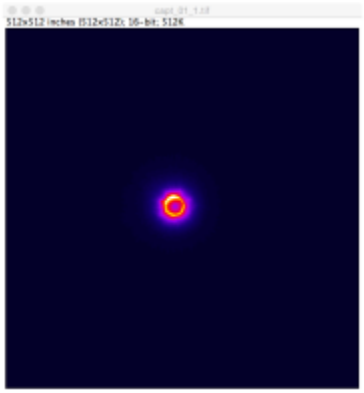
*Energy = 3 729*
*Contrast = 1 634*
*Entropy = 1.16329*
*Imin = 3*
*Imax = 203*
*nInt = 182*

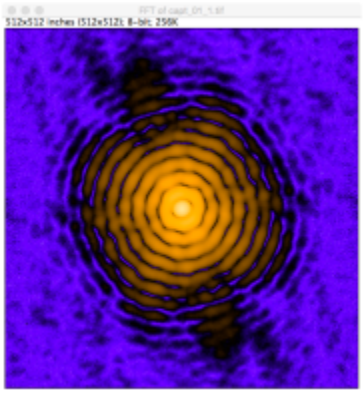
*Energy = 4 317*
*Contrast = 1 939*
*Entropy = 1.25223*
*Imin = 3*
*Imax = 239*
*nInt = 215*

*Energy = 4 552*
*Contrast = 2 082*
*Entropy = 1.22944*
*Imin = 3*
*Imax = 255*
*nInt = 225*

*Electrophotonic images with their fast Fourier transform*. Impregnated pills seems to be characterized by much higher standard deviations than non-impregnated pills. Energies and contrasts are found to be different at a one sigma level of significance, while entropies cannot be differentiated.

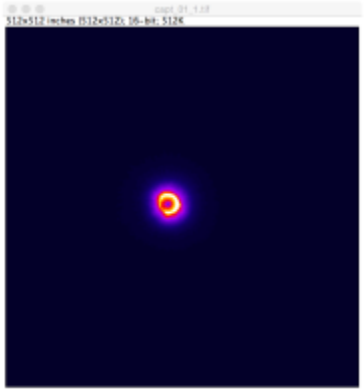
# EPA Pills CUPRUM

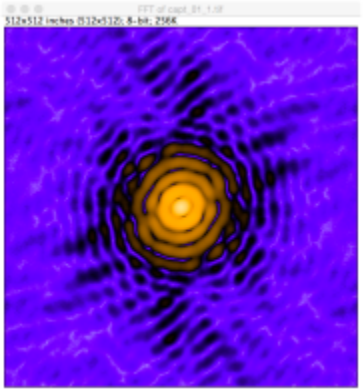




*Flask 126 (5CH)*

*Energy = 5 054*
*Contrast = 1 943*
*Entropy = 0.983*
*Imin = 3*
*Imax = 255*
*nInt = 225*





*Flask 69 (5CH)*
*1987*

*Energy = 6042*
*Contrast = 2 446*
*Entropy = 1.147*
*Imin = 1*
*Imax = 255*
*nInt = 247*

The top one refer to the preparation made in 2016 for this study, while the second one corresponds to a preparation made 30 years ago by the same pharmacy. It is observed that aging does not alter the photonic energy or the contrast energy that appear to be significantly higher than the reference. It also appears that the aged sample seems to be more emissive and have a higher entropy than the fresh one. This tends to prove that the quality of an homeopathic preparation may be quite stable for a long period of time. The higher entropy of the aged sample means that the information content seems to have increased over time, while the FFT evidences a smaller frequency spreading.

# EPA Pills CUPRUM

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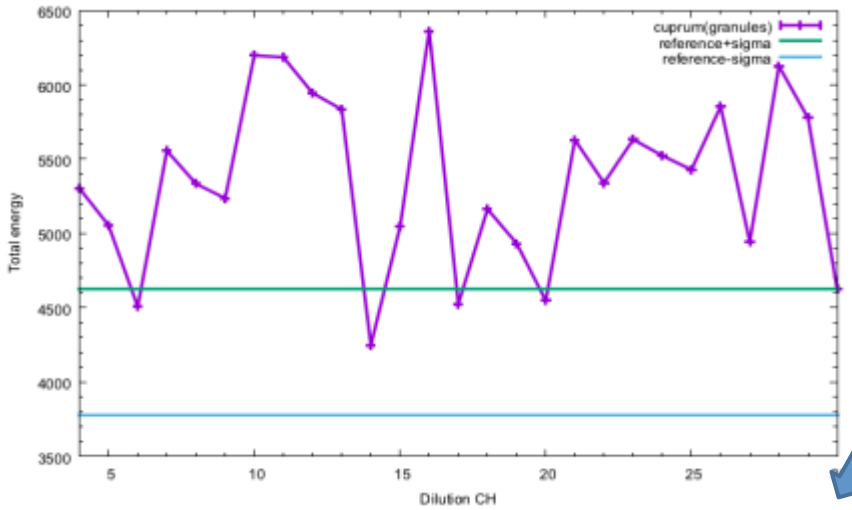
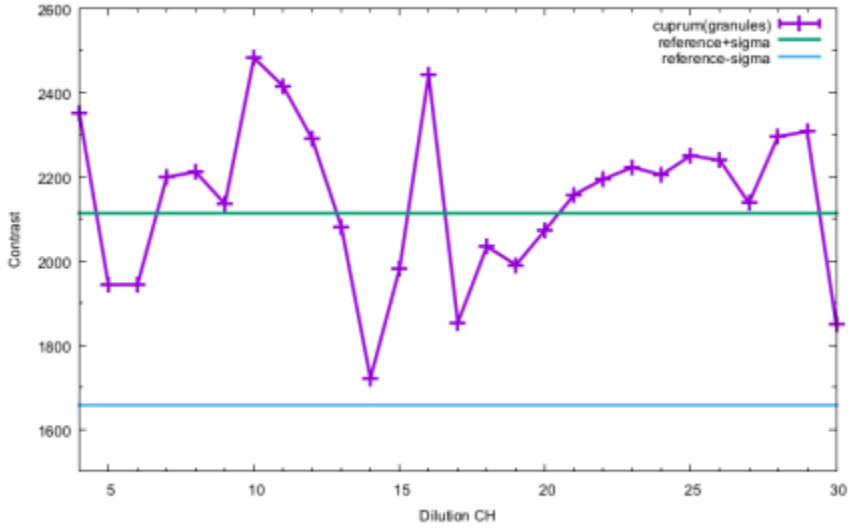


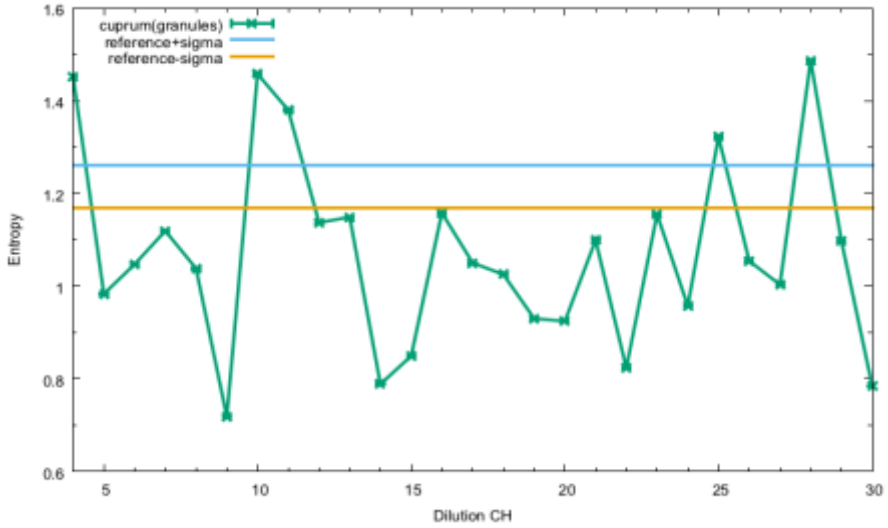

Potentized CUPRUM impregnated pills

**Energy** average energy value is found to be statistically different from the granules impregnated with the pure solvent

**Contrast** average contrast value is found to be not statistically different from the reference

**Entropy** average entropy value is found to be not statistically different from the reference



# EPA Pills CUPRUM

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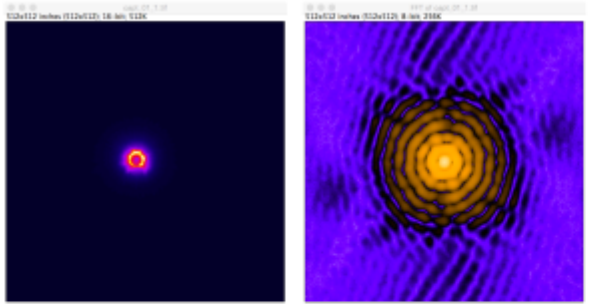
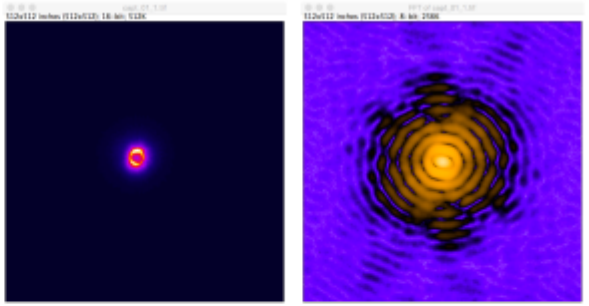
***Impregnated simple dilution Cuprum***

***Impregnated potentized Cuprum***



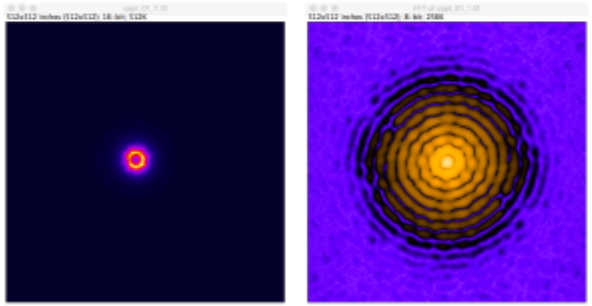
*Flacon 255 (Dil 30)*

*Energy = 5 332*
*Contrast = 2 300*
*Entropy = 1.18865*
*Imin = 3*
*Imax = 255*
*nInt = 241*



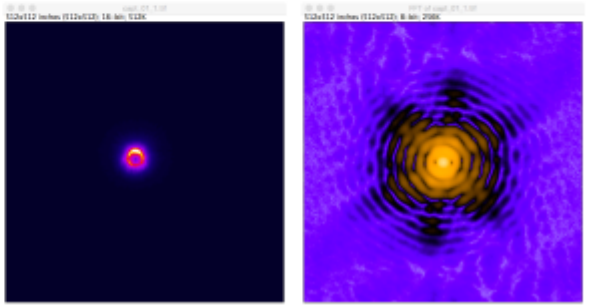
*Flacon 174 (15CH)*

*Energy = 5 044*
*Contrast = 1 981*
*Entropy= 0.848703*
*Imin = 3*
*Imax = 255*
*nInt = 232*



*Flacon 256 (Dil 60)*

*Energy = 5 422*
*Contrast = 2 168*
*Entropy = 1.19964*
*Imin = 3*
*Imax = 255*
*nInt = 243*

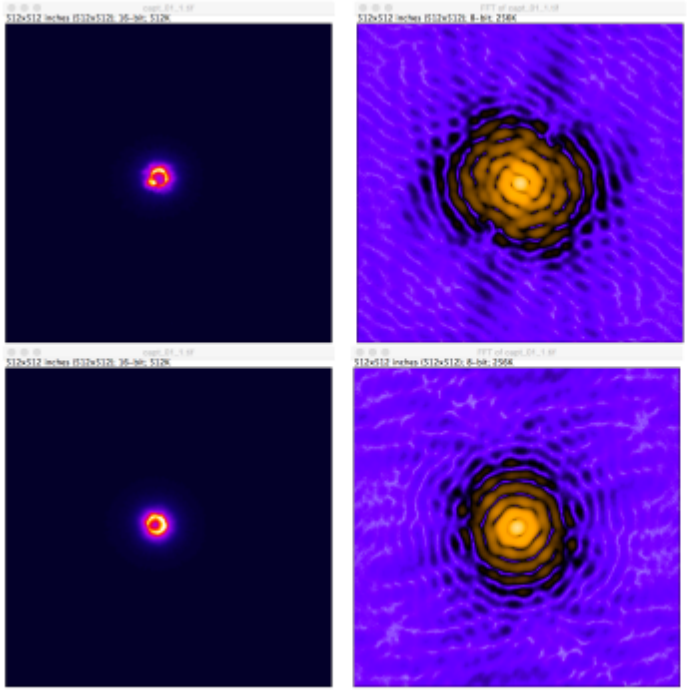


*Flacon 226 (30CH)*

*Energy = 4 624*
*Contrast = 1 849*
*Entropy = 0.785113*
*Imin = 3*
*Imax = 255*
*nInt = 223*

*Electrophotonic images with their fast Fourier transform*. One observes a systematic reduction in energy, contrast and entropy for the dynamized samples relative to the diluted ones.

# EPA Pills CUPRUM
# Korsakov preparations



*Flask 185 (200K)*

*Energy = 5 044*
*Contrast = 2 208*
*Entropy = 1.05433*
*Imin = 3*
*Imax = 255*
*nInt = 227*

*Flask 93 (200K)*
*1986*

*Energy = 5 929*
*Contrast = 2 378*
*Entropy = 1.32028*
*Imin = 3*
*Imax = 255*
*nInt = 240*

The top one refer to the preparation made in 2016 for this study, while the second one corresponds to a preparation made 30 years ago by the same pharmacy. It is again observed that aging does not alter the photonic energy or the contrast energy that appear to be significantly higher than the reference and quite similar to the one observed for a 5CH preparation. It again appears that the aged sample seems to be more emissive and have a higher entropy than the fresh one. This tends to prove that the quality of an homeopathic preparation using the Korsakov method may also be quite stable for a long period of time. As with the Hahnemann method, he higher entropy of the aged sample means that the information content seems to have increased over time, while the FFT evidences a smaller frequency spreading.

# EPA Pills CUPRUM

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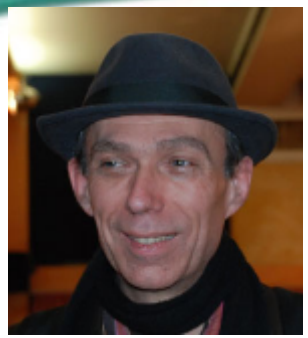
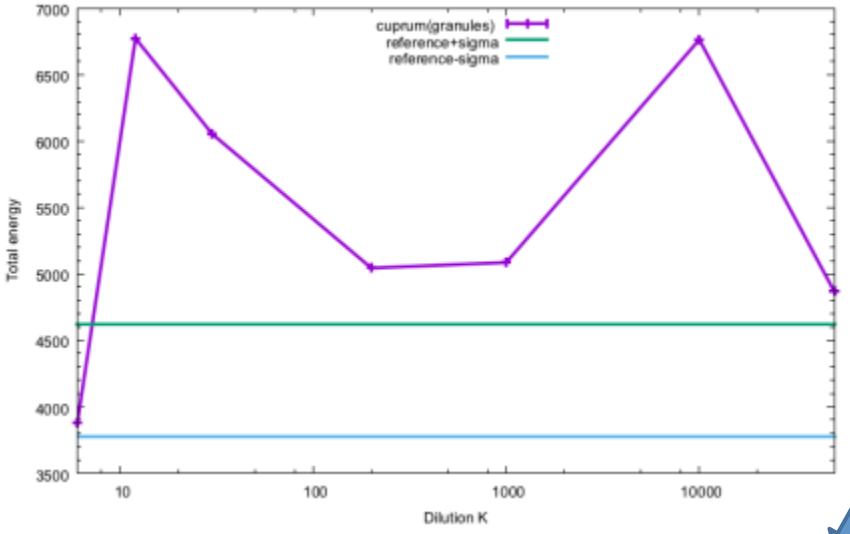


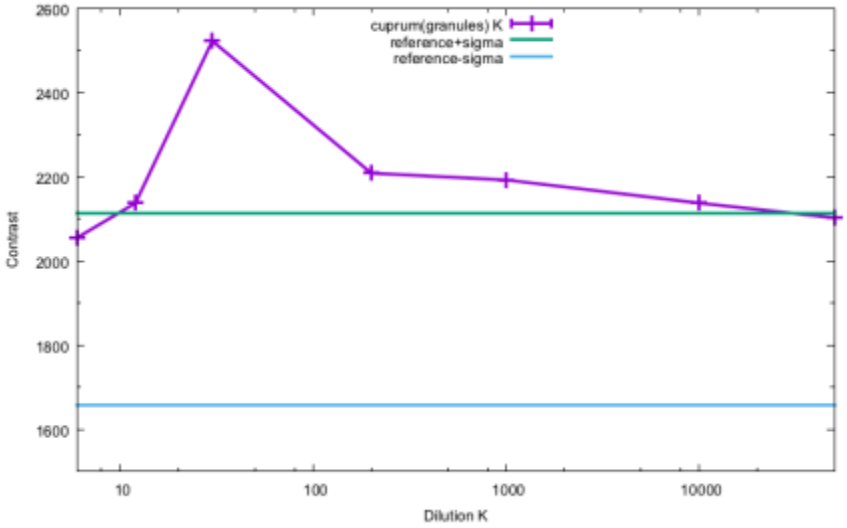


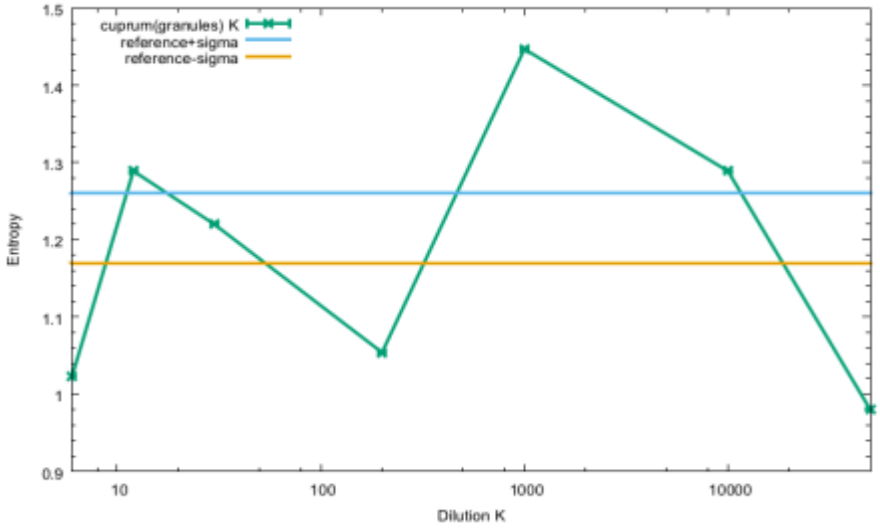

## K Potentized CUPRUM impreg. pills

**Energy** average energy value is found to be not statistically different from the granules impregnated with the pure solvent

**Contrast** average contrast value is found to be not statistically different from the reference

**Entropy** average entropy value is found to be statistically different from the reference



# EPA Pills GELSEMIUM

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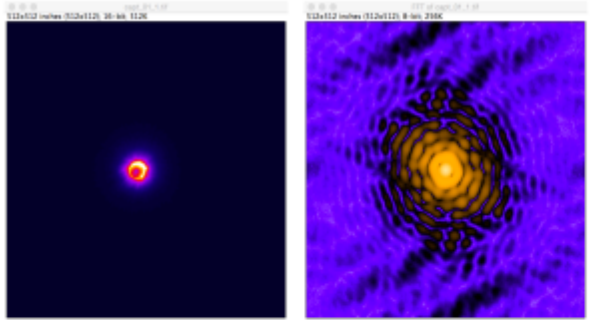
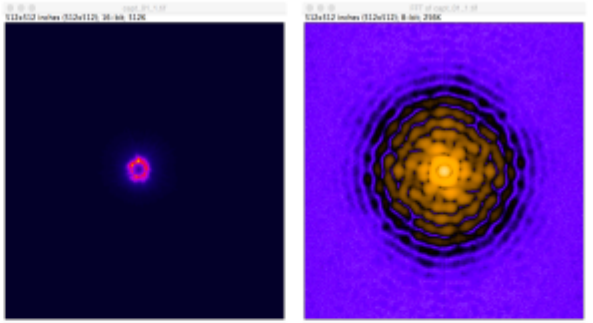
***Impregnated simple dilution Gelsemium***

***Impregnated potentized Gelsemium***



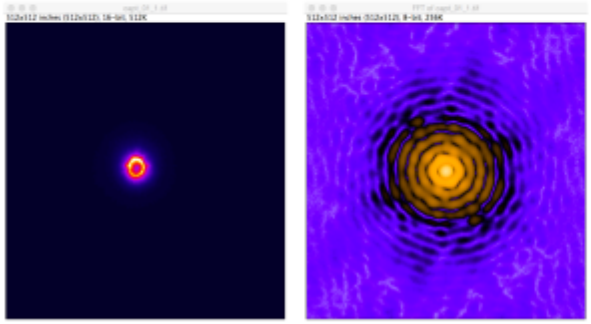
*Flask 258 (Dil 30)*

*Energy = 6 138*
*Contrast = 2 248*
*Entropy = 1.26628*
*Imin = 3*
*Imax = 255*
*nInt = 235*



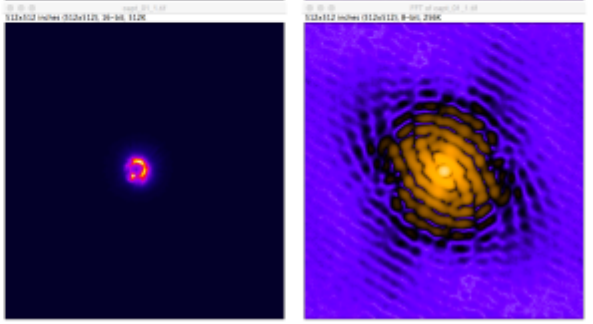
*Flask 160 (15 CH)*

*Energy = 3 363*
*Contrast = 1 299*
*Entropy = 0.904248*
*Imin = 3*
*Imax = 189*
*nInt = 256*



*Flask 259 (Dil 60)*

*Energy = 5 732*
*Contrast = 2 273*
*Entropy = 1.15629*
*Imin = 3*
*Imax = 255*
*nInt = 239*



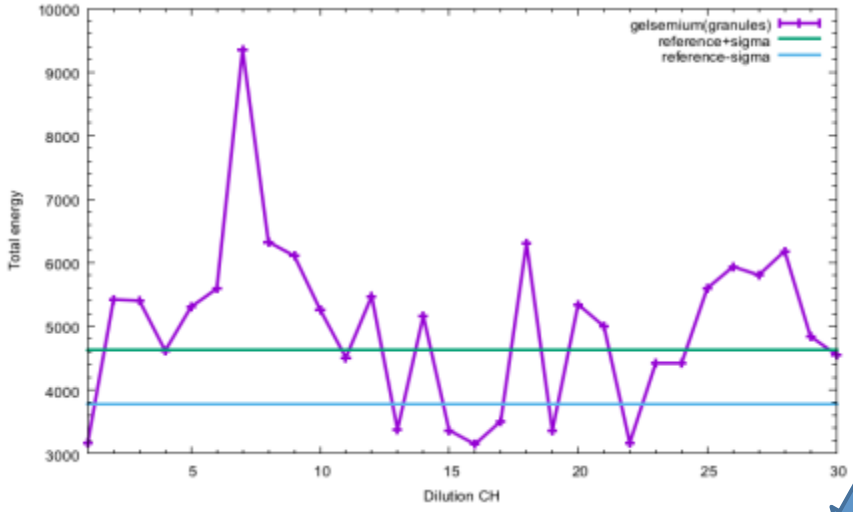
*Flask 177 (30 CH)*

*Energy = 4 555*
*Contrast = 1 982*
*Entropy = 0.95306*
*Imin = 3*
*Imax = 255*
*nInt = 227*

*Electrophotonic images with their fast Fourier transform*. One observes a systematic reduction in energy, contrast and entropy for the dynamized samples relative to the diluted ones.

# EPA Pills GELSEMIUM

UNIVERSITÉ DE STRASBOURG

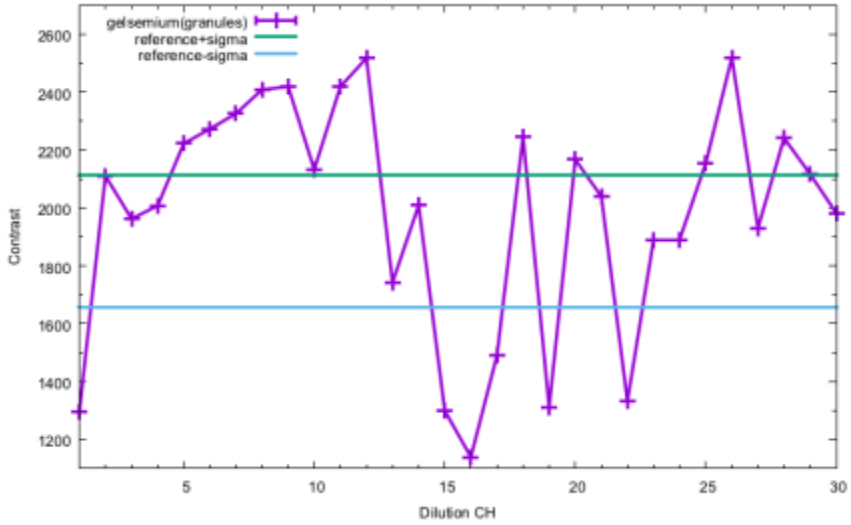


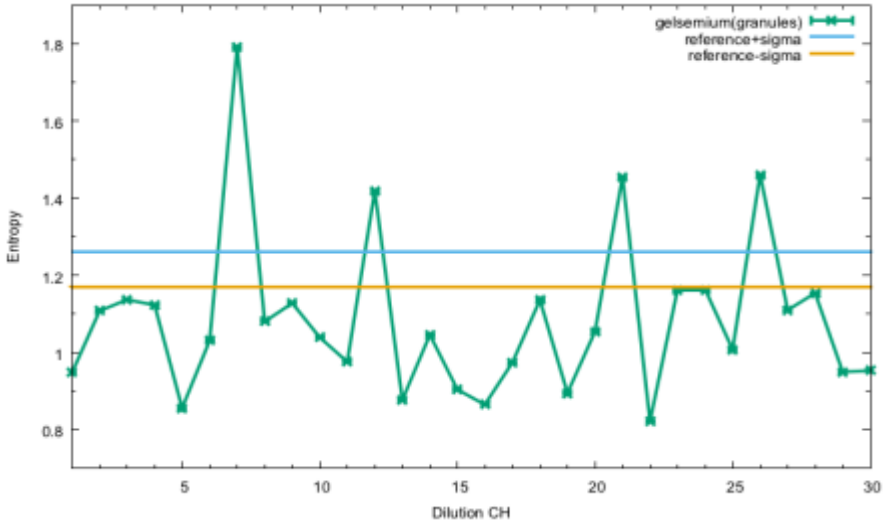

Potentized Gelsemium impreg. pills

**Energy** average energy value is found to be not statistically different from the granules impregnated with the pure solvent

**Contrast** average contrast value is found to be not statistically different from the reference

**Entropy** average entropy value is found to be not statistically different from the reference



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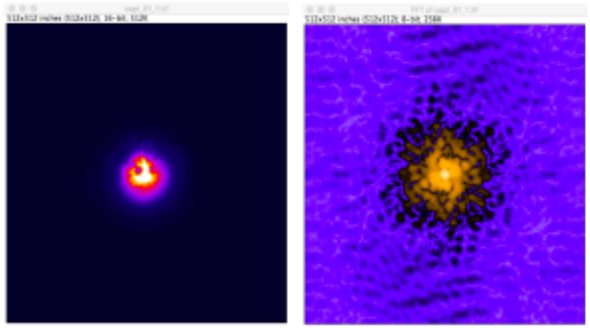
# EPA Pills

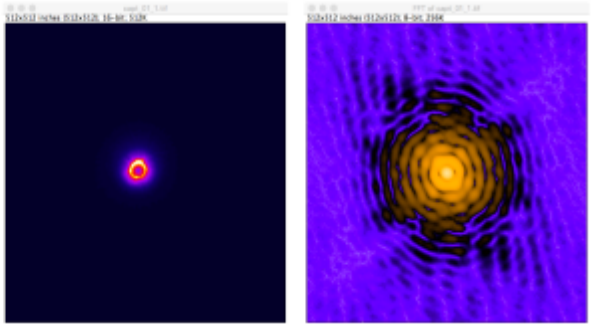
***Impregnated potentized Gelsemium***

***Impregnated potentized Cuprum***



*Flask 232 (7 CH)*
*Gelsemium*

*Energy = 9 353*
*Contrast = 2 325*
*Entropy = 1.79207*
*Imin = 3*
*Imax = 255*
*nInt = 245*

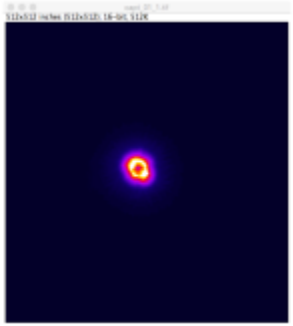


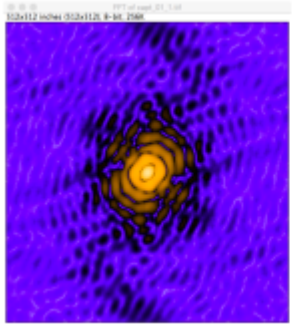
*Flask 173 (7 CH)*
*cuprum metallicum*

*Energy = 5 556*
*Contrast = 2 199*
*Entropy = 1.11916*
*Imin = 3*
*Imax = 255*
*nInt = 233*

*Electrophotonic images with their fast Fourier transform*. Looking at individual data, most granules display a contrast significantly different than the reference value plus or minus one standard deviation (green and blue lines). It follows that as already observed for the energy, gelsemium samples appears to behave quite differently from *cuprum metallicum* ones. By contrast with the energy distribution a negative skewness (left asymmetry) relative to a normal distribution is observed, meaning that high dilutions have more contrast than low dilutions. The kurtosis is also found to be negative relative to a normal distribution, meaning that the tails of the distribution (low and high dilutions) are depleted relative to the center (medium dilutions).

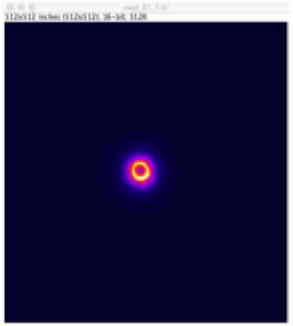
# EPA Pills GELSEMIUM
# Korsakov preparations

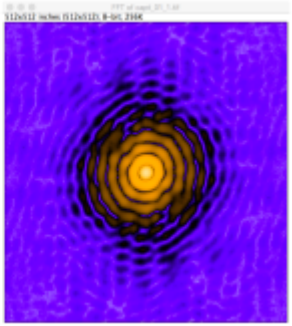




*Flask 190 (200 K)*

*Energy = 7 461*
*Contrast = 2 579*
*Entropy = 1.34181*
*Imin = 3*
*Imax = 255*
*nInt = 250*





*Flask 217 (200 K)*
*2004*

*Energy = 6 146*
*Contrast = 2 367*
*Entropy = 1.16249*
*Imin = 3*
*Imax = 255*
*nInt = 249*

By contrast with *cuprum metallicum* samples, it is observed that aging does not increase the photonic energy or the contrast. It also appears that the aged sample seems to be less emissive and have a lower entropy than the fresh one. The lower entropy of the aged sample means that the information content seems to have decreased over time, while the FFT evidences a larger frequency spreading.

# EPA Pills GELSEMIUM

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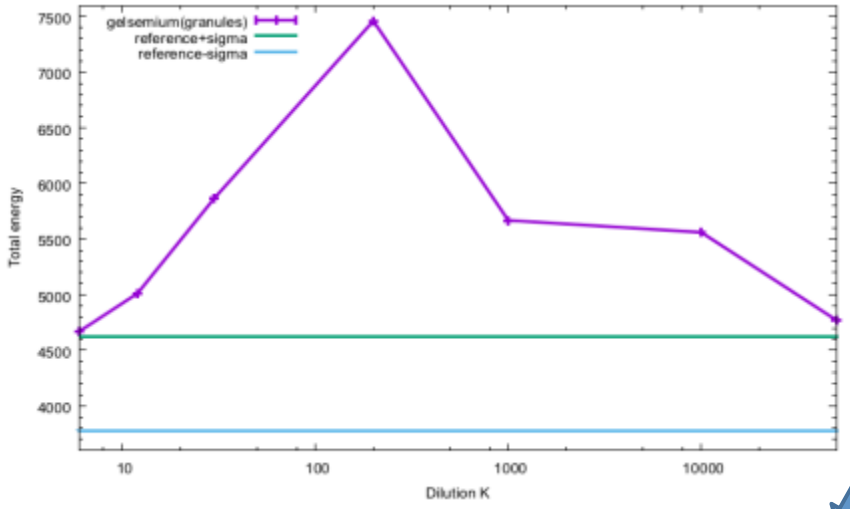
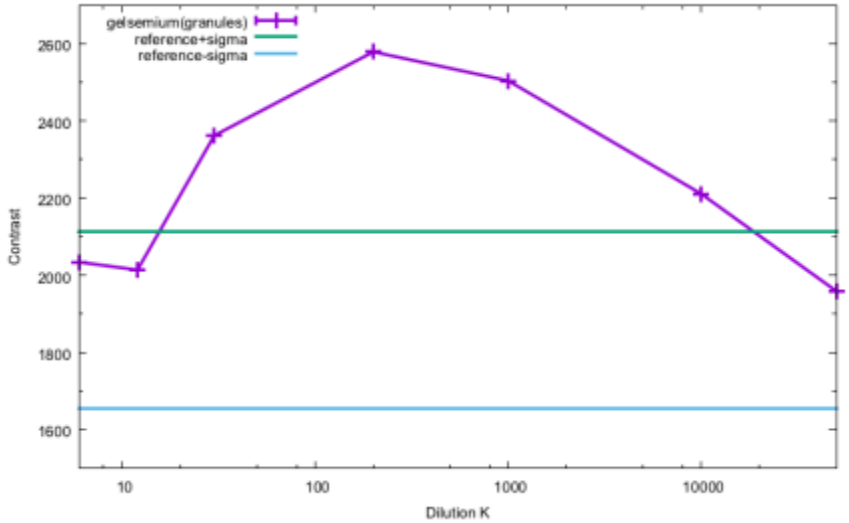


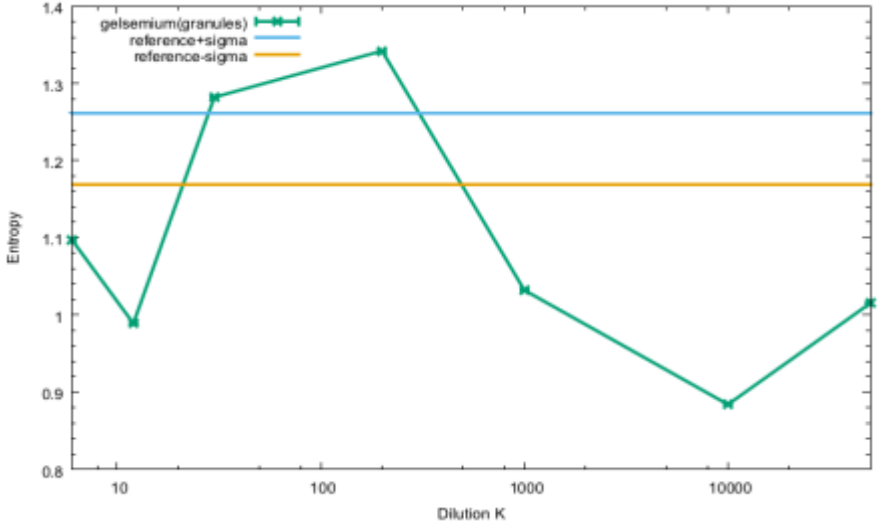

## K Potentized GELSEMIUM imp. pills

**Energy** average energy value is found to be statistically different from the granules impregnated with the pure solvent

**Contrast** average contrast value is found to be not statistically different from the reference

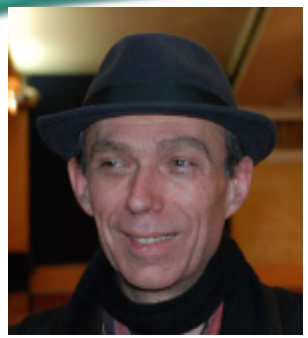
**Entropy** average entropy value is found to be statistically different from the reference



# EPA Pills

UNIVERSITÉ DE STRASBOURG



## Conclusions :

- ✓ Granules impregnated with *cuprum metallicum* or *gelsemium* dynamized solutions are clearly distinguishable using electrophotonic analysis.
- ✓ Hahnemann's and Korsakov's protocols also lead to distinguishable images for the same kind of samples.
- ✓ It was also observed that samples aged of tens of years remains distinguishable from the reference or from fresh samples, evolving with time and evidencing a kind of improvement over time quite similar to that observed with wine and alcohols for example.
- ✓ All electrophotonic images display a characteristic more or less brilliant globular aspect, meaning that samples reacts mainly to the negative pulses of the generator and are insensitive to the positive pulses.

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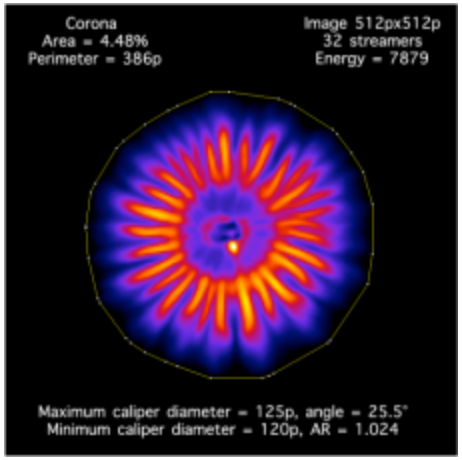
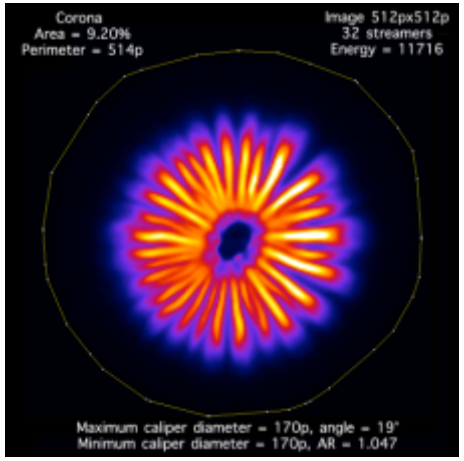
**EPA granules**
**Cuprum 4CH**

**Gelsemium 4CH**




# Comments Prof. Marc Henry

# EBM
# Gelsemium sempervirens

Léon Scheepers M.D.
Text Michel Van Wassenhoven M.D.

# Gelsemium sempervirens

- Possibility
- Probability
- Confirmation
- Corroboration
- Verification

# Possibility

**Pharmacology**:

- Fresh or dry roots (PhEur-GHP-FP): highly poisonous; various indole alkaloids (Gelseminine, Gelsemine a.e.), some with properties similar to strychnine.

# Possibility

**SYMPTOMS**:

Analgesic, CNS depressant, cardio- depressant, hypotensive.

Difficult use of voluntary muscles, muscles rigidity & weakness, dizziness, loss of speech, dry mouth, visual disturbances, trembling of extremities, profuse sweating, respiratory depression, convulsions.

Respiratory failure may cause death.

# Probability

**Proving**: Henry (USA) 1852, tincture, 3 male provers

- **Mind**: dullness, disinclination to conversation.
- **Generals**: weak, pale, nauseous & trembling legs at sight of blood or severe wounds.
- **Sensations**: sensation as if limbs could not be made to move another step; heavy weight in limbs.

# Confirmation

**Provings**: 149 provers, 1573 symptoms

Keynotes:

- **Constitution**: excitable, irritable, sensitive.
- **Mind**:
  - Bad effects from fright, fear, exciting news
  - Anticipation brings on diarrhoea or frequent urination
  - Stage fright.
  - Desire to be quiet, to be alone.
  - Children: fear of falling, grasp the crib or seize the nurse.

# Confirmation

**PHYSICAL**:

- General depression from heat of sun or summer.

**HEAD**:

- Vertigo with diplopia, dim vision, loss of sight; seems intoxicated when trying to move.
- Headache
  - preceded by blindness, > by profuse urination.
  - beginning in the cervical spine > extend over the head.
- Sensation of band around the head above eyes.

# Confirmation

**Eyes**:

- Great heaviness of the eyelids

**Cardio- vascular system**:

- Fears heart will cease beating.
- Slow pulse of old age.

**Nervous system**:

- Lack of muscular co-ordination

# Confirmation

**FEVER**:

- Chill without thirst.

**MODALITIES**:

- < mental emotion or excitement, bad news, tobacco smoking, when thinking of his ailments.


- Ref. Allen T. Encyclopedia of Pure Materia Medica (Vol 1-10) New York, USA : Boericke & Tafel/ Philadelphia, USA: Boericke &Tafel, 1879 // Bradford T. Index of Homeopathic Provings. New Delhi, India B.Jain Publishers. 2000. // Dake J, Hughes R. Cyclopaedia of Drug Pathogenesy (Vol 1-4) London: Gould/ New Delhi, India B.Jain Publishers. 1891. // Steoenson J. Hahnemannian Provings – A Materia Medica and Repertory 1924-1959. Bombay, India: Roy and Co/ New Delhi, India B.Jain Publishers. 1963 . /// Allens Keynotes. H.C. Allen. B. Jain Publisher. New Delhi, India.

# Corroboration

**Some example out of 43 publications** (http://www.carstens- stiftung.de/hombrex/):

**Medical analyser system**:

- Heart rate variability; Blood flow variability; Autonomic nervous system.

**Microarray**:

- Microarray studies exist and show where and how the remedy will act

# Corroboration

**Neurophysiology, EEG in rats**:

- Gelsemium D4 induces changes in electro-chemical neurotransmission of the most important kations Ca2+, Na+ and K+ playing a role in the excitability of the neurons.

**Anxiety assessment method in rats**:

- Gelsemine, the major active principle of the yellow jasmine (Gelsemium) is an anxiolytic.

- Ref. An exploratory study on scientific investigations in homeopathy using medical analyzer . Mishra N, Muraleedharan KC, Paranjpe AS, Munta DK, Singh H, Nayak C. Regional Research Institute for Homoeopathy , CCRH, Mumbai, India. J Altern Complement Med. 2011 Aug;17(8):705-10 . // Extreme sensitivity of gene expression in human SH-SY5Y neurocytes to ultra-low doses of Gelsemium sempervirens. Marzotto & al. BMC Complementary and Alternative Medicine. 2014, 14:104 . // Dimpfel W, Biller A. In vivo and in vitro neurophysiological findings in the rat in the presence of Coffea D6, Gelsemium D4 and Veratrum D6 extracts. Scientific Framework of Homeopathy 2014 . // Behav Brain Res. 2013 Sep 15;253:90-4. doi: 10.1016/j.bbr.2013.07.010. Epub 2013 Jul 11. Pharmacological effect of gelsemine on anxiety-like behavior in rat. Meyer L, Boujedaini N, Patte-Mensah C, Mensah-Nyagan AG.

# Verification

One example out of the **150 authors** describing 8087 clinically verified symptoms of Gelsemium:

**Symptoms**:

- Anxiety from grief or future events. Anxiety in stomach.
- Lassitude and trembling in muscles.
- Using Likelihood ratio calculations for chronic patients, most valuable symptoms to approach systematic efficacy of the prescription are **tenacious anxious thoughts after grief** or in **front of future events**.

# Verification

**Indications**:

- Most frequent used diagnoses are anxiety and stress (54% of the patients); 16% stress gastralgia.
- Other diagnoses in diminishing order: hay fever, urination urging, stress precordialgia, stress colitis, migraine, allergic sinusitis, menstrual disturbances. Flu-like symptoms are considered for acute use when there is muscle pain and weakness, waves-like chill in back, and anxiety.
- Ref. First line medicine – Clinical verification – Verification of homeopathic symptoms ISBN (2008) 978-2-87491-003-6 /Van Wassenhoven M.

# OXFORD EBM SCALE.

LEVEL 1

- 1a: SR (Systematic review)  of RCT's.
- 1b: Individual RCT

LEVEL 2

- 2a: SR of cohort studies
- 2b: Individual cohort studie
- 2c: "Outcomes" research;  Ecological studies.

LEVEL 3:

- 3a: SR of case-control studies
- 3b: Individual case study

LEVEL 4:

- Case-series

LEVEL 5:

- Expert opinion

# Verification

**Animal surveys**:

- The overall pattern of results provides evidence that Gelsemium sempervirens acts on the emotional reactivity of mice, and that its anxiolytic-like effects are apparent, with a non-linear relationship, even at high dilutions.
- This pooled data analysis confirms and reinforces the evidence that Gelsemium s. regulates emotional responses and behaviour of laboratory mice in a nonlinear fashion with dilution/ dynamization.

# Verification

**Human survey**:

- Sempervirine (extract of Gelsemium sempervirens in 5, 7, 30CH) have a significant anxiolytic effect on animals (Guillemain et al 1989; Cardenne M 1991) and in human in 5, 7 9CH, using the “State-Trait Anxiety Inventory” (STAI) in two groups of 60 patients (Sempervirine versus benzodiazepine) have a statistically significant comparable efficacy on anxiety and an added change in personality (anxious component) at long time for the Sempervirine group.

# Verification

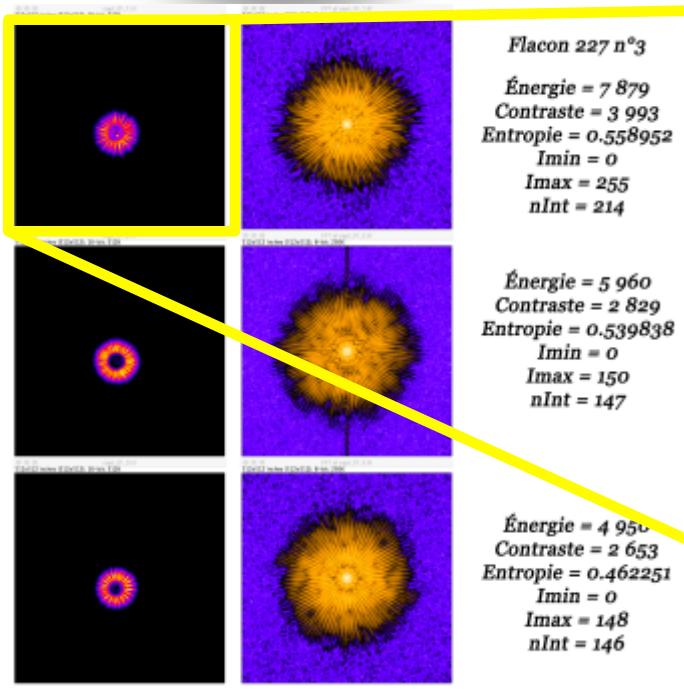
**EBM level 1a for animals and 2b for humans** (Individual cohort clinical trial) and all lower levels; an attempt to reach level 1 with Gelsemium in psychiatric disorders with anxiety failed. No ethical problems to prescribe homeopathy for patients. This fact is confirmed by the EPI-3 survey.

- Ref. Bellavite P, Magnani P, Zanolin E, Conforti A. Dose-effect study of Gelsemium sempervirens in high dilutions on anxiety-related responses in mice. Psychopharmacology (Berl). 2010 Jul;210(4):533-45. doi: 10.1007/s00213-010-1855-2. Epub 2010 Apr 20 // Testing homeopathy in mouse emotional response models: pooled data analysis of two series of studies. Bellavite P, Conforti A, Marzotto M, Magnani P, Cristofoletti M, Olioso D, Zanolin ME. Evid Based Complement Alternat Med. 2012;2012:954374. doi: 10.1155/2012/954374. Epub 2012 Apr 4. PMID: 22548123 [PubMed] // Dorfman (P), Tétau (M). Applications cliniques de la recherche pharmacologique. Cahiers de Biothérapie n°125 Décembre 1993-Janvier 1994. // Paris A1, Schmidlin S, Mouret S, Hodaj E, Marijnen P, Boujedaini N, Polosan M, Cracowski JL. Effect of Gelsemium 5CH and 15CH on anticipatory anxiety: a phase III, single-centre, randomized, placebo-controlled study. Fundam Clin Pharmacol. 2012 Dec;26(6):751-60. doi: 10.1111/j.1472-8206.2011.00993.x. Epub 2011 Sep 28. // Grimaldi-Bensouda L., Engel P., Massol J., , Guillemot D., Avouac B., Duru G., Lert F., Magnier A.M., Rossignol M., Rouillon F., Abenhaim L., Begaud B., EPI3 LA-SER group. Who seeks primary care for sleep, anxiety and depressive disorders from physicians prescribing homeopathy and other complementary medecine? Results from the EPI3-population survey. BMJ Open 2012,2(6): e001498. doi: 10.1136/bmjopen-2012-001498.1-10

# EPA Call for help

**Cuprum 4CH** **30 minutes**

## List of volunteers!

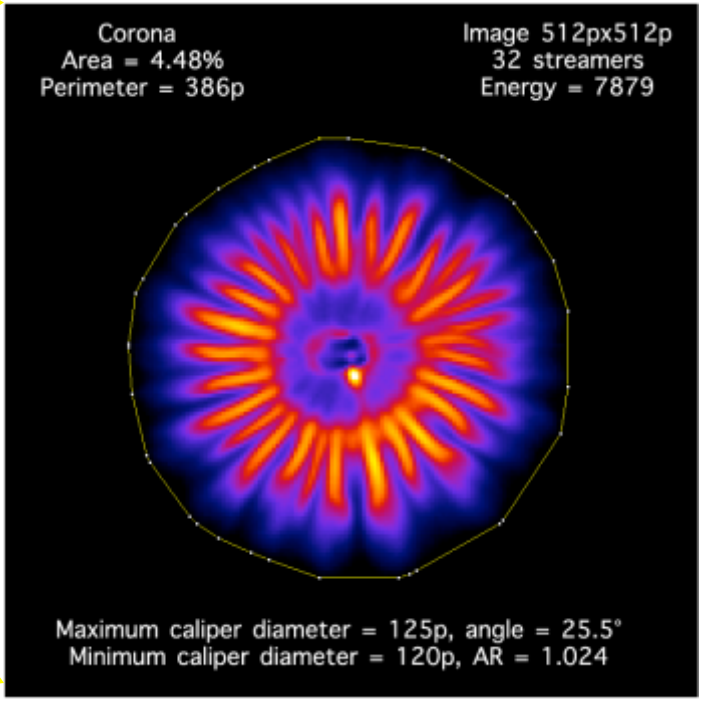


*Flacon 227 n°3*

*Énergie = 7 879*
*Contraste = 3 993*
*Entropie = 0.558952*
*Imin = 0*
*Imax = 255*
*nInt = 214*

*Énergie = 5 960*
*Contraste = 2 829*
*Entropie = 0.539838*
*Imin = 0*
*Imax = 150*
*nInt = 147*

*Énergie = 4 95[illegible]*
*Contraste = 2 653*
*Entropie = 0.462251*
*Imin = 0*
*Imax = 148*
*nInt = 146*



# QUESTIONS ?

- ✓ This afternoon one hour response to questions and debate is foreseen.
- ✓ **Remember or Write your questions !**

# DYNHOM

See you after lunch!