



ON AN ORANGE COMPLEX FROM L-DOPA

## LILI'S NEW CHEM

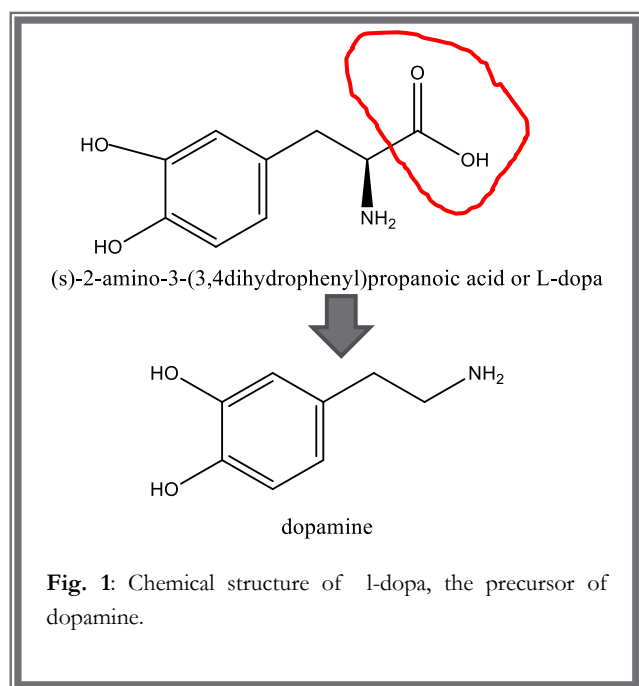
ON A NEW COMPOUND FROM LEVODOPA<sup>1</sup>

"I need to slow down sometimes  
So I can just see how I feel  
The world won't stop spinning  
if I take my hands off the steering wheel  
I need to just take a breath  
Feel the power in a sigh  
'Cause these 20-second  
adrenaline hits get me so high

I'm drowning in dopamine  
So much, I'm starting to struggle to feel  
Drowning in dopamine  
So I'm gon' take the space, so I start to heal

I'll rest my head upon someone I love  
Think of the beauty below and above  
Breathe in and out, 'cause when push comes to shove  
I'm so lucky I'm here"

Dopamine by Ellie Dixon



Today, lili would like to present lili's new compound from the precursor of dopamine, l-dopa or also name levodopa (see fig 1). L-dopa or levodopa is a Parkinson drug that is used as a way to produce dopamine in the brain particularly in the brain of people with Parkinson disease. It was found that the Parkinson brain does not produce or produce low levels of dopamine. Dopamine is also related with the mood but some recent clinical studies were retracted since they are plenty of papers retractions and deficient protocols.<sup>2</sup>

I would like to present a woman who was working with neurotransmitters such as adrenaline, noradrenaline and dopamine, and discovered for the first time dopamine in the brain and wanted to disappear from the tabloids.

Kathleen Ethel Dawes was the niece of a famous Erotic

Kathleen Dawes<sup>1</sup>

F. #476752, b. 3 February 1897, d. 28 March 1966

Last Edited=22 Jun 2012

Kathleen Dawes was born on 3 February 1897 at Southmark, London, England.<sup>2</sup> She was the daughter of W. H. Dawes.<sup>1</sup> She married William Angus Drogo Montagu, 8th Duke of Manchester, son of George Victor Drogo Montagu, 8th Duke of Manchester and Francisca Maria de la Consolacion Yznaga, on 17 December 1931.<sup>3</sup> She died on 28 March 1966 at age 69.<sup>1</sup>

After her marriage, Kathleen Dawes was styled as Duchess of Manchester on 17 December 1931. From 17 December 1931, her married name became Montagu.<sup>1</sup>

Citations

- [S37] BP2003 volume 2, page 2587. See link for full details for this source. Hereinafter cited as [S37]
- [S68a] Mark Tompsett, "re: Dawes Family," e-mail message to Darryl Roger LUNDY (101953), 22 June 2012. Hereinafter cited as "re: Dawes Family."

**Fig. 2:** Fragment of the personal data of Kathleen Dawes from thepeerage.com

writer or collector of erotica, Charles Reginald Dawes, the youngest brother of her father William Henry (b. 1868) (see Fig. 2). He wrote bibliographic studies, such as *Restif de la Bretonne and Marquis of Sade*.<sup>3</sup>

Kathleen's father, William Henry married Ethel Clara Moore at Peckham near London in 1895. He was a theater manager. Kathleen Ethel Dawes was born 2 year later on 3 February 1897 in Southwark, London.

Miss Kathleen Ethel Dawes became the wife of William Angus Drogo Montagu, ninth Duke of Manchester on 17 Dec 1931. Thus, she became Kathleen Ethel Montagu, Ducheness of Manchester.

Very few pictures are now from her. I am very proud of me since I got an original picture of her wedding's day, presumably (Fig. 3, left). It seems that they have some problems to get married since according to The new York State Law he requires to wait three years for a license to wed after he divorce of his first wife Helena Zimmerman (Fig. 3, right).

It seems that they circumvented this small problem quickly and the finally married in a brief ceremony at Greenwich, Conn. in December 17 1931. She is wearing an expensive fur coat which was a motive of debate a couple of years later (see Fig 4),

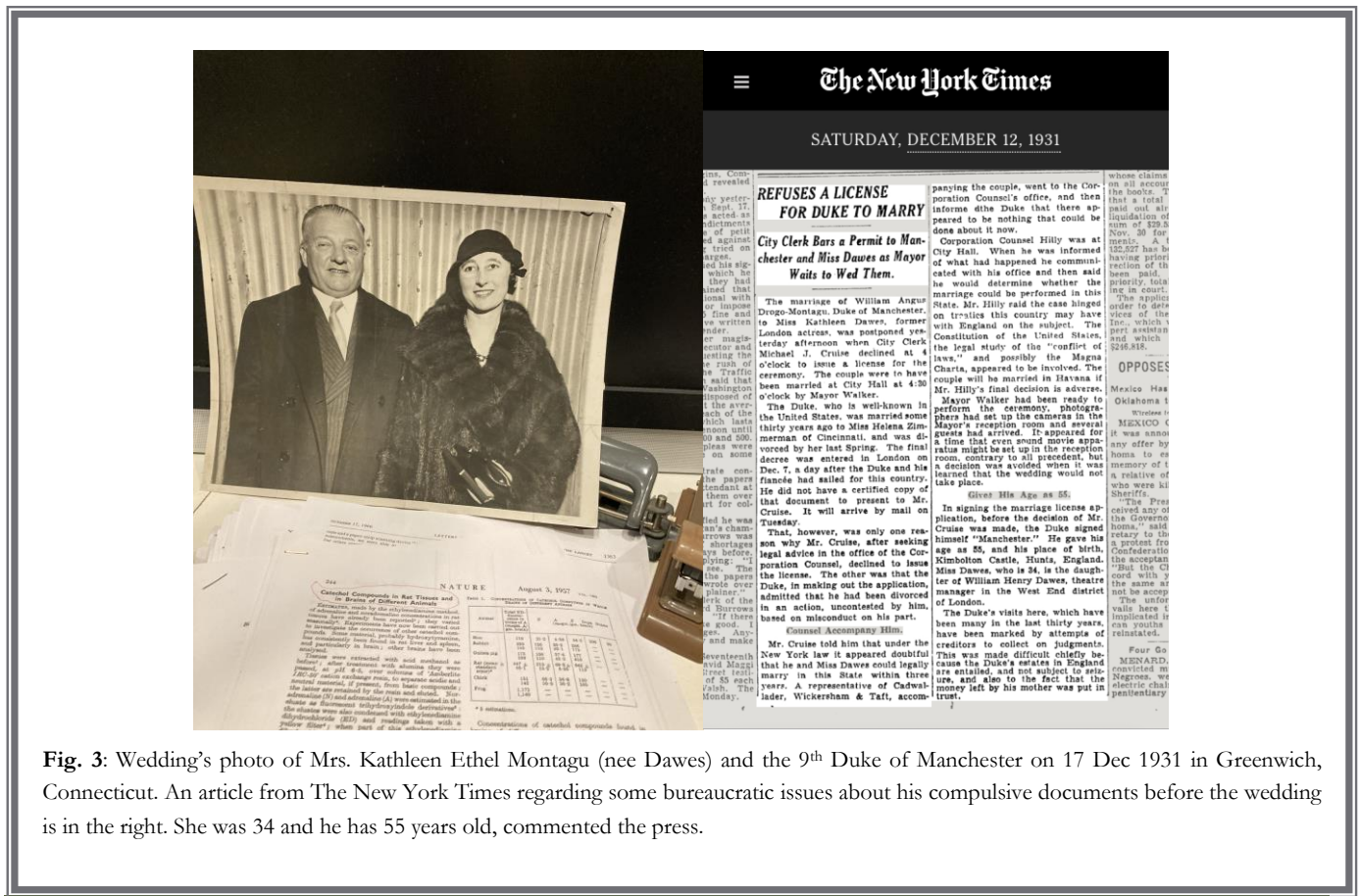
The press was more interested in the age difference between the bride and the groom. Many press reports direct deliberately to this small detail (Fig. 3).

Miss Kathleen Dawes worked as a voluntary nurse during the WW1 as a list of the Voluntary Aid Detachments (VAD) in Manchester House in Tonbridge VADs testified:

“Miss Kathleen Dawes, Manchester House, Tonbridge Served at Quarry Hill from 17th March 1917 until 28th February 1919. Duties: Nurse (originally Probationer – works under Senior Nurse – 1182 hours).”

With a note in the link about training:

“**Training:** At the outbreak of the war, many



**Fig. 3:** Wedding's photo of Mrs. Kathleen Ethel Montagu (nee Dawes) and the 9<sup>th</sup> Duke of Manchester on 17 Dec 1931 in Greenwich, Connecticut. An article from The New York Times regarding some bureaucratic issues about his compulsive documents before the wedding is in the right. She was 34 and he has 55 years old, commented the press.

people were inspired to train to help the sick and wounded. Women needed to be taught first aid, home nursing and hygiene by approved medical practitioners. They also took classes in cookery. Men were trained in first aid in-the-field and stretcher bearing. Talented VADs could take specialist classes to become a masseuse or use an x-ray machine. VADs had to pass exams to receive their first aid and home nursing certificates”<sup>24</sup>

Thus, she carried out many voluntary positions and because she was very talented, she got a nurse certificate and perhaps she took many x-ray pictures without any kind of safety.

Kathleen Dawes was the daughter of W. H Dawes a West End Gaiety theatre manager. Thus, I assume to be a creative woman was in her veins. She was also an actress of

theater, presumably after her voluntary work as a nurse in Tonbridge. Some accounts for this trajectory can be seen on the report on Tilly of Bloomsbury by Ian Hay started in 1919 at Apollo Theatre (Shafterbury avenue in London)<sup>5</sup> and also in “the only girl”<sup>6</sup> (see next Fig.4).

As mentioned above, Kathleen Ethel Dawes becomes after marriage Kathleen Ethel Montagu as I found in a

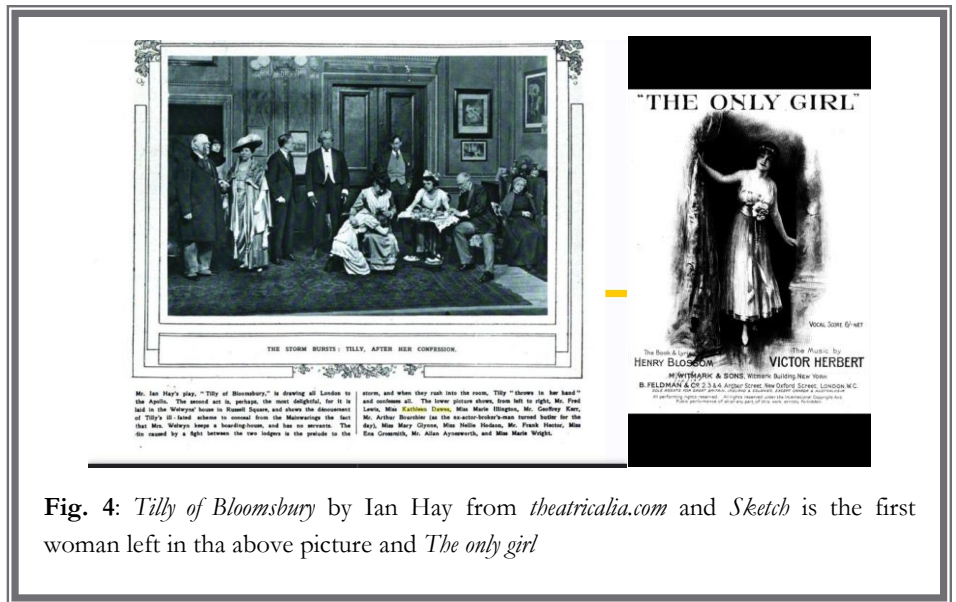


Fig. 4: Tilly of Bloomsbury by Ian Hay from *theatricalia.com* and Sketch is the first woman left in the above picture and *The only girl*



Fig. 5: March 3, 1933

list passengers for the United States of Dec 4 1937 in familyserach.org. She soon realized that press likes the royalty. Some scandals regarding her right of using jewels, furs or laces left by her Mother in low, Consuelo, from the mother of her husband (Fig. 6) were published in The New York Times after her marriage. She was sued through the estate’s trustees to get items according with Times 20 Mar, 1933. Perhaps somebody loot at the wedding picture (Fig. 3) and complained about it.

Kathleen Montagu is rather unknown in the scientific literature. Only third sources cite one Kathleen Montagu when talking about one woman working in neuro research. It is bizarre, since those papers are authored by Katharine A Montagu and not Kathleen Montagu.

If you want to be invisible, you can just use a pseudonym if you come back to your previous work and have the possibility to do other kind of creative work.

Her first paper with other two authors, Knox and McDowal, was “the action of adrenaline on the rat diaphragm” on 1951.”<sup>7</sup> She only has two paper with other colleagues, once on 1951 and the other on 1968 which I would refer later. For the rest she was acting alone.

“On the nature of the action of adrenaline in the isolated rat phrenic–nerve diaphragm preparation, primarily after a depressant excess of potassium” was the title of her dissertation on 1952.

Thus, she managed to study and complete another study perhaps a M.Sc? in 1952, when she was 55? years old. She certainly wanted to have another title more relevant than the nurse certificate and she got it. On Feb. 1964, on the publication “a short method of estimating urinary excretion of strogens for therapeutic use in pregnancy” she appears with a M. Sc. title as author.

Mrs. Katharine Montagu is well known by her discovery of the existence of dopamine on brain humans in 3 August 1957 in a solo paper working in the Runwell Hospital, with the advice of Dr. H. Weil-Malherbe with a grant by the Medical Research Council.<sup>8</sup>

She certainly realized soon that her research was causing some stupor. She found another catecholamine in human brain which was supposed to be only an intermediate. One month after her publication, her adviser corroborate her results and

Hornykiewicz, who was the pioneer in the use of L-Dopa for the treatment of Parkinson Disease when he discovered that the Parkinson brain had very low levels of dopamine and who knew her research about dopamine refers always as Kathleen Montagu. Did he know something?<sup>9</sup>

“(As an aside, it is somewhat surprising to note that neither of the **three research groups** found it necessary to quote or refer to Kathleen Montagu’s fundamental discovery of DA’s occurrence in the brain [6], which clearly implied the amine’s own physiological role in brain function. [Montagu’s study had been published in “Nature” one and a half years earlier!].)”

The three research groups were Bertler and Rosengren, Sano and Carlsson. Reference 6 is the Montagu’s paper about dopamine in brains of 1957.

Thus, he did credit her discoveries which were the beginning of many new ideas regarding treatment of the neuro disorders such as parkinsons disease with dopamine/L-dopa.

Hornykiewicz with his L-dopa under the shoulder and the best results in clinical trials did not understand why it took so many years of the acknowledgement of dopamine as a neurotransmitter. It seems that it was a great battle between groups with other neurotransmitters trying to explain the physiology mechanism of their neurotransmitters.

He was not was a strong advocate of the dopamine treatment but other friends help him with strong sentences.

Dopamine was the “Cinderella of the biogenic amines”—by the Everett, the ally of Hornykiewicz — and was the key sentence in the catecholamine’s battle.

She managed to published on 12 Feb. 1962 a paper that gives evidence for statements of her paper on 1957 and 1959 that a basic catechol compound, probably 3-hydroxy tyramine,, i.e., dopamine, is present in considerable amount in the brain of different animals<sup>10</sup>.

Katharine A Montagu has dozen of publication including some letter to the editor in March 4 1967 answered some comments or criticism regarding the publication of Dr Rodbro and Dr. Christiansen, from Copenhagen regarding the indices of peptic ulceration paper of December 17, 1966 at Lancet.

She always was a solo autor of her publicaciones, However the only exception are the first paper mentioned before and the last paper on “carcinoma of the bronchus with adrenocortical hyperplasia” wit E.J. Ross and S. Barret from Annual Report of the British Empire Cancer Campaign for Research in 1968<sup>11</sup>

Your day of birth or your day of decesa can be an key issue if your looking for somebody/



Since Kathelen Montagu, nee Dawes was member of the royalty family, the genealogical details or family trees is without doubt a way of posterity. So Kathleen Dawes died on 28 March 1966 at the age of 69 in Sussex, England, United Kingdom, according to England and Wales Death registration index, 1837-2007", page 380, volume 5H, from the familysearch.org. Kathleen Ethel was buried with her parents Ethel Clara (nee Moore) and William Henry Dawes in Sussex, London.<sup>12</sup>

I assume that she died on March 28, 1966, and she left her tissues for research on carcinoma—evidence is her internal report with colleagues—and some papers to be submitted on her desk. It is normal that it takes time for publication when your submitted a paper. Certainly she gave a legal power to some friend or colleague in order to manage the submission of the papers and the

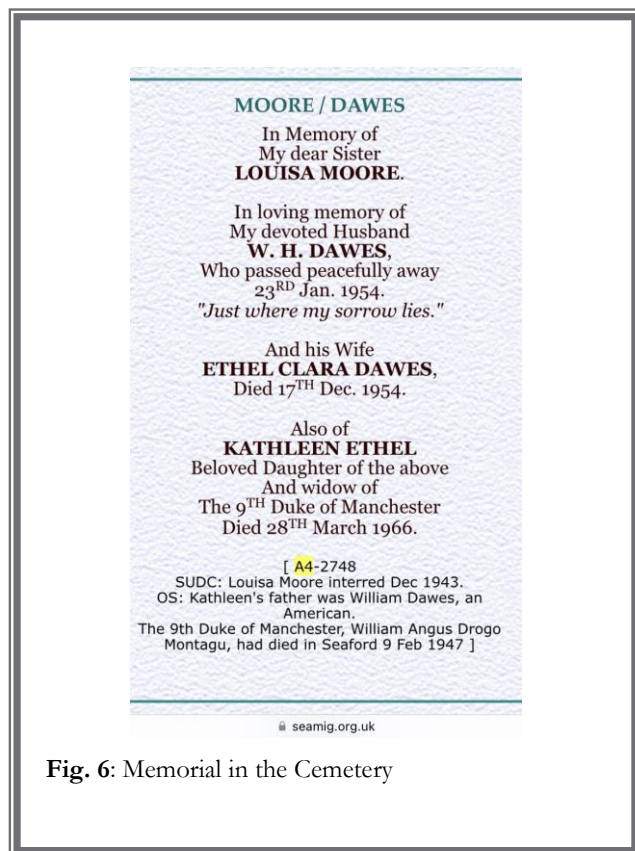


Fig. 6: Memorial in the Cemetery

possible problems or comments that can emerge.

On May 1969, she or her friend or power holder wrote an answer for some comments regarding her last paper

“eating and corticosteroid levels” of Dec 1968. There are not anymore signals nether from Katharine A. Montagu in the literature nor from Kathleen Ethel Montagu (nee Dawes) after this.

Katharine A Montagu and Kathleen E Montagu (nee Dawes) are the same, according to lili. Mrs. MSc K Montagu is the fairy godmother of the Cinderella dopamine who gave her the shine as a neurotransmitter in the brain.

I need to collect some more assertive evidence. Thus, this history will continue...

“On This Day She” in its X account mentioned Kathleen Montagu as being the first woman that identify dopamine—a vital neurotransmitter involve in movement and various disorders such as Parkinson’s disease—in human brains. They directed this message to an article in Cell, “fifty years of dopamine research” by Anders Bjöklund and Stephen B. Dunnet.<sup>13</sup>

K. Montagu was no mentioned as the first person to discover dopamine in brain on her paper of 3 Aug 1957. It occurred that she was a modest woman and others wanted to have her achievements for free.

Let’s continue with *dopamine* by Ellie Dixon

“I need to smile sometimes  
Place myself into my body  
It's easy to get so wrapped up  
in your head when it's foggy  
So I'll go lay down my roots  
Seeping down into the mud  
Take in the joy in the peace of the void, it's so good

I'm drowning in dopamine  
So much, I'm starting to struggle to feel  
Drowning in dopamine  
So I'm gon' take the space, so I start to heal

I'll rest my head upon someone I love  
Think of the beauty below and above  
Breathe in and out, 'cause when push comes to shove  
I'm so lucky I'm here”

## Introduction

L-dopa is aromatic compound (IUPAC Name: (2S)-2-amino-3-(3,4-dihydroxyphenyl)propanoic acid) which is found in beans such as fava beans (or *Vicia Faba*) and lacuna beans (*Mucuna pruriens*) of the family of Fabaceae. In Fig. 1 you can see that the only difference between l-dopa and dopamine is a carboxylic acid moiety.

It is the precursor of neurotransmitters, such as dopamine, in the brain. In other words, dopamine is produced endogenous in the body if l-dopa is produced endogeneous or delivered in the body.

As explained before, it is used as a drug for the treatment of Parkinson disease. L-dopa can cross the brain barrier where dopamine would be produced by the enzymes who take away the carboxylic acid of the l-dopa to produce dopamine. Dopamine cannot cross the brain barrier.

The difference between dopamine and L-dopa is in the carboxylic acid functionality. In order to keep this functionality intact after administration, other compounds such as inhibitor are administered together

I believe that my innovation on aromatic compounds such as catechol amines with different properties (e.g. colors and solubilities) is a revolutionary method of dealing with the stability of this kind of compounds in the blood and it would be a way of smart delivery of l-dopa to the brain. This is an example of a wide range of applications of this novel compounds.

Although the most relevant use of levodopa is a dug for the treatment of several deceases, such as Parkinson, there are more (potential) uses such as anti-anything (i.e., antimicrobial, antifungal, anti cancerigenic, etc.); intermediate of many reactions to produce medicaments and more.

Today, lili would like to present to you one of her pigments/dyes based on one aromatic catecholamine (natural from for example the fava beans or synthetic) in the market, e.g. L-dopa, with at least one metal alkoxide by mechanochemistry according to lili's pending patents<sup>1</sup> and to show that these complexes can be used

as cosmetics/medicaments without other ingredients or with less ingredients in the formulation, since they present different physicochemical properties in comparison to the original catecholamine.

Lili believes that so far studies involving l-dopa have been performed using original l-dopa without changes (or minor chances) in the structure and thus the problem of the stability in many media was completely overlook.

Here, lili would like to show you that her orange l-dopa metal complex is stable against light and solvents and has enhanced properties in comparison with l-dopa alone. Furthermore, this new complex can act as a physical and chemical absorber/filter since titanium or zinc is present in the aromatic structure and any other appropriate metal can be used as a source of metal from the metal alkoxide.



**Fig. 6:** Polymeric l-dopa compound which has a beautiful orange color. L-dopa is a white solid as can be seen in the inside the bottle (above)

## Results and Discussion

The metal complex of l-dopa has a beautiful yellowish orange color that is very stable in several solvents (Fig

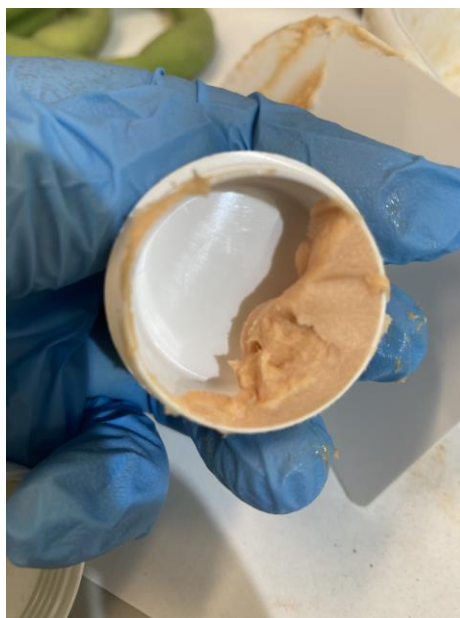


**Fig. 7:** L-dopa suprapolymeric material complexes according to lili's portfolio of innovations

and 5).

Lili's cosmetic formulations comprising the metal complexes of her invention are also very stable against light, storage and solvents, among others.

The supramolecular and/or polymeric structure of this novel compound is produced by a self and/or forced assembly by the mechanochemical process according to my pending patents. Since the structure of my metal levodopa complex is bigger than the neat l-dopa (proof



**Fig. 8:** Some cosmetics prepared with a tyny amount of metal complexes of L-dopa in powder form according to lili's patents

thereof is the change in color (see Fig. 6), there is less chance of this novel l-dopa complex being destroyed in the body before it can act.

Thus, lili can conveniently design the appropriate color (i.e., the structure) of my complex by using the processes according to lili's pending patents.

Lili's new colored pigment/dye based on the simple levodopa e.g. in powder form (Fig. 7)—neither protecting groups nor leaving groups nor directing groups nor any other working groups are intentionally created or designed—is very stable to light, storage, temperature, to solvent, e.g. water. The way to produce this new colored pigment/dye is very simple, rapid and environment-friendly, since no toxic organic or aqueous solvents are added and no waste or (toxic) byproducts are produced. The scale-up is also ready. Just imagine that hundreds of tons of levodopa that many companies are producing or extracting from nature can be converted to a gorgeous pigment/dye in only a few minutes with several applications, for instance, for

replacing many toxic red dyes containing toxic metals such as lead, chromium, cadmium, arsenic or tin.

In addition, this new levodopa metal complex can be used as a tinted cream that can be used as a sunscreen, for instance, for Parkinson patients which are prone to melanoma cancer if they do not protect from the sun. (Fig. 8).

Just imagine using a hand or body cream with presumably some benefits for the body with this beautiful polymeric material and at the same time to protect from the sun. A sunscreen that at the same time could have some benefits to Parkinson disease could be an advantage for the Parkinson patient.

### Conclusions

Lili's metal complexes have the potential to be used as a drug after the corresponding risk assessments have been done. With subtle changes in the production or the formulation of this complex, the color can be changed according to the color of the skin or to people's favorite color. If another metal (or no metal) alkoxide is used to perform the mechanochemical reaction with l-dopa, different materials can be obtained with a diversity of colors. The sustainable product and production and the enhanced properties, such as solubility and color, make my novel compounds very apt to be used in cosmetics. My novel compound will impart a distinct tone to the cosmetics, which is markedly different from the off-white of vanillin.

### Outlook

The process to produce metal levodopa complexes deserves some attention, as it is well known that complexation reduce the toxicity of many compounds and it is recognized as a strategy to reduce safety issues. Major companies can conduct studies without hesitation regarding toxicity to humans. Lili believes that her portfolio of innovations on **doctora liliana cosmetics** regarding new materials can contribute to solve the general problem of many drugs regarding the stability against light, humidity and storage, among others. Furthermore, those levodopa complexes can be

obtained with many colors and with many odors. The next glimpse report will be about other catecholamines complexes according to lili's innovations.

You should remember that these are only glimpse reports, i.e. short reports about lili's innovation and not a full detailed description and analysis of my innovation portfolio. The future is full of colors, full of functions, full of scents, full of new material in lili's new chem.

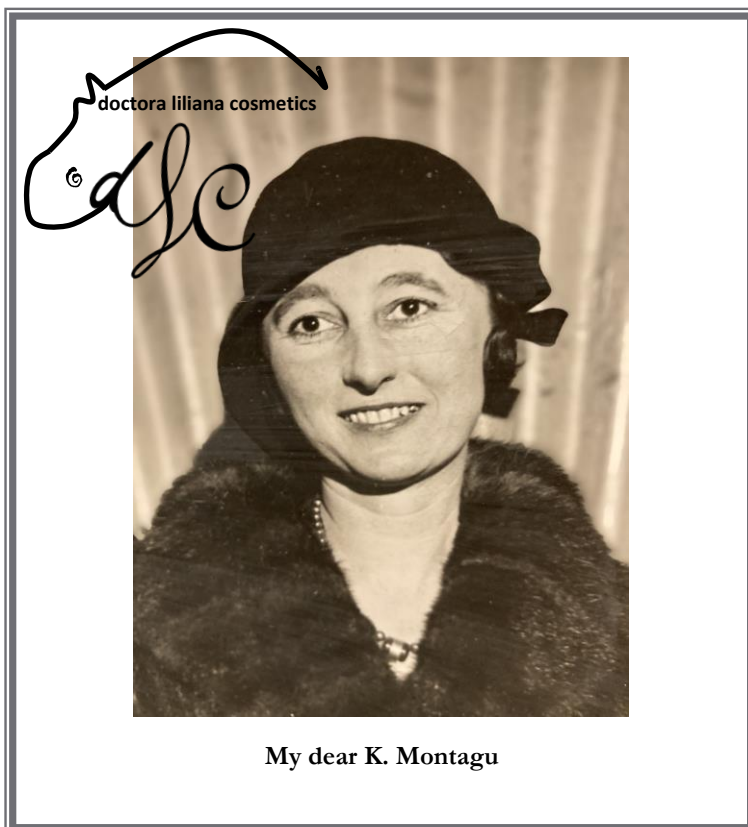
Welcome.

And let's continue again with the beautiful song "dopamine" by Ellie Dixon,

"Slow down, slow down  
Slow down, slow down  
Slow down (slow down, ooh)

I'm drowning in dopamine  
So much, I'm starting to struggle to feel  
Drowning in dopamine  
So I'm gonna take the space, so I start to heal

I'll rest my head upon someone I love  
Think of the beauty below and above



Breathe in and out, 'cause when push comes to shove"



<sup>1</sup> **WO2021121647** - Metal complexes of macrocycles and/or isoprenoids and/or linear tetrapyrroles by mechanochemistry (grinding or milling), preparation method thereof, sunscreen/concealer/uv absorber thereof, self-assembled coating material thereof, superamphiphilic material or surfaces thereof, hair dyeing thereof and other uses thereof. **Priority Data** 18.12.2019

**WO2019238261** - Metal complexes of  $\beta$ -diketones and/or polyphenols by green chemistry, preparation method thereof, sunscreen thereof, skin or hair tone concealer thereof, hair dyeing thereof and other uses thereof. **Priority Data:** 15.06.2018

<sup>2</sup> U.S. watchdog halts studies at N.Y. Psychiatric Center after a subject's suicide, The New York Times, Aug. 10, 2023

<sup>3</sup> [http://scissors-and-paste.net/pdf/dawes\\_library.pdf](http://scissors-and-paste.net/pdf/dawes_library.pdf), introductory note.

<sup>4</sup> <http://www.tonbridgehistory.org.uk/people/vad-staff.htm>

<sup>5</sup> <https://theatricalia.com/play/cpv/tilly-of-bloomsbury/production/13wc>

<sup>6</sup> <https://s9.imslp.org/files/imglnks/usimg/a/a7/IMSLP234219-SIBLEY1802.20013.990a-39087011135342score.pdf>

<sup>7</sup> the action of adrenaline on the rat diaphragm" on 1951

<sup>8</sup> Montagu, K. A., Catechol compounds in rat tissues and in brains of different animals, *Nature*, 180, 244-245.

<sup>9</sup> Hornykiewicz O. (2017). L-DOPA *Journal of Parkinson's Disease*, vol 7 (s1):S3-S10; <https://pdfs.semanticscholar.org/5bf4/8e4f8fb144eff5be8901a590e0f90d8aeb2e.pdf>

<sup>10</sup> Montagu, K. (1963). Some catechol compounds other than noradrenaline and adrenaline in brains, *Biochem. J.* 86, 9.

<sup>11</sup> Annual report of the British Empire Cancer campaign for Research, Vol. 46, 1968.

<sup>12</sup> <https://www.seamig.org.uk/namesM.htm>

<sup>13</sup> <https://www.cell.com/trends/neurosciences/fulltext/S0166-2236%2807%2900051-3>

RAMIREZ RIOS L. P., on an orange complex from l-dopa, lili's new chem, glimpse #7, 23 Nov 2023.

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