

Impact of forbidden foodstuffs on the efficacy of homoeopathic medicines: An *in vitro* evaluation

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Abstract

Background: In previous screening experiment, out of some homoeopathic medicines in 30 and 200 potencies *Mezereum* 200 showed maximum inhibition to growth of *Candida albicans* on comparing the 'Zone of Inhibition' in culture plates treated with homoeopathic medicines keeping standard antifungal Ketoconazole, rectified spirit and distilled water as control by using *Disc method*. **Objective:** To observe the impact of various forbidden edible items such as *garlic, onion, cardamom, clove, caraway, ginger, fenugreek, black pepper, asafoetida, red chilli, green chilli, turmeric, lemon and camphor* on the efficacy of *Mezereum* 200 in the inhibition of growth of human pathogenic fungus *C. albicans*. **Materials: Isolation of human pathogenic fungus:** Sample collected from patients suffering from oral ulcers was incubated for 15 days at 37+1°C for growth of fungus, if any. The growth of *Candida albicans* was obtained. **Preparation of prohibited items:** 500 mg of fine powdered prohibited items were dissolved/mixed in 5 ml distilled water. 5 µl of autoclaved solution of each item was mixed with 5 µl of *Mezereum* 200. **Method:** *Disc method* was used to assess the impact of prohibited items on the efficacy of homoeopathic medicine *Mezereum* 200 in *in-vitro* conditions against *Candida albicans* by "Inhibition Zone Technique". **Result:** The result of this *in-vitro* experiment has shown that there is no inhibitory effect of prohibited items in question on *Mezereum* 200 in causing inhibition to growth of *Candida albicans*. **Conclusion:** It is evident from this experiment that there is no interference of prohibited items on the action of homoeopathic medicine.

Keywords: *Candida albicans*, *Disc method*, *Mezereum*, *In vitro* inhibitory effect, *Garlic*, *Onion*, *Inhibition zone technique*

INTRODUCTION

Homoeopathy has been the hot subject of debate in the scientific parlance with respect to the efficacy of potentised preparations.^[1-5] This is a system of medicine that has been in widespread use for the last 200 years, the theory of which is diametrically opposed to modern pharmaceutical knowledge and theories^[6-8] because the fundamental tenets of Homoeopathy are completely different from modern medicine, pharmacology and chemistry.^[9] Main sources of contention include the implausibility of homoeopathic principles, the lack of a proven or plausible mechanism of action for Homoeopathy and mixed results from randomised controlled trials on homoeopathic preparations. These conflicts coupled with the existence of some high-quality trials that did not show a benefit with Homoeopathy have caused many to conclude that Homoeopathy is nothing more than quackery.^[9-13] Over and above, the restriction of certain edible food stuff/items by homoeopathic physicians on flimsy grounds that these stuffs neutralise the effect of medicine caused repulsive impact in

the mind of public about Homoeopathy. These restrictions are being passed from one generation of homoeopathic physician to the other without even trying to explore any possible scientific reason behind it, thus putting a big question mark on its efficacy.

In previous experimental research work entitled 'Anti-candidal activity of homoeopathic drugs: An *in vitro* evaluation,' effect of some homoeopathic medicines (namely, *Acid benzoicum, Apis mellifica, Graphites, Kali iodatum, Mezereum, Petroleum, Sepia, Silicea, Sulphur, Sulphur iodatum, Tellurium, Thuja occidentalis*) in 30 and 200 potencies against human pathogenic *Candida albicans* by comparing the 'Zone of Inhibition' for growth of the fungus in culture plates treated

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with potentised medicines and with standard antifungal drug, Ketoconazole (Positive control), rectified spirit (vehicle) and distilled water as control using Disc method were screened. Among different drug potencies having given a positive response, *Mezereum 200* showed maximum inhibition of growth confirming its definite inhibitory activity against *C. albicans*.^[13]

It has been propagated since inception of Homoeopathy that certain edible items (namely, *garlic, onion, cardamom, clove, caraway, ginger* etc.) neutralise the action of homoeopathic medicines. Majority of homoeopathic physicians used to prohibit intake of these items during homoeopathic treatment without any scientific reasons. This gave us a point to ponder whether restriction of these items during homoeopathic treatment is merely arbitrary/whimsical or has any scientific basis. It was a matter of concern that whether these forbidden items actually neutralise the action of homoeopathic medicines or it is just a myth? There was also a big question that, could by any means, such phenomenon, if any, be proved on human subjects?

To observe whether these forbidden items are capable of neutralising the action of homoeopathic medicines or not, an *in vitro* experiment was planned and conducted in the Medical Mycology Laboratory of Gaurang Clinic and Centre for Homoeopathic Research (GCCHR) based at Lucknow. In this experiment, the effect of certain prohibited edible items alone (namely, *garlic, onion, cardamom, clove, caraway, ginger, fenugreek, black pepper, asafoetida, red chilli, green chilli, turmeric, lemon* and *camphor*) in comparison to impact of these items admixed with *Mezereum 200* keeping *Mezereum 200* and rectified spirit (vehicle) as control was observed for their inhibitory activity on the growth of human pathogenic yeast *C. albicans*.

Objective

To observe the impact of various forbidden edible items such as *garlic, onion, cardamom, clove, caraway, ginger, fenugreek, black pepper, asafoetida, red chilli, green chilli, turmeric, lemon* and *camphor* on the efficacy of *Mezereum 200* in the inhibition of growth of human pathogenic fungus *C. albicans*.

MATERIALS AND METHODS

Isolation of human pathogenic fungus

The samples were collected from the oral cavity of the patients suffering from oral ulcers who came to GCCHR for treatment. Part of the oral swab was examined directly in potassium hydroxide (10%) slide mount. KOH preparation of swab showed fair number of yeast-like cells. For isolation, the rest part of swab was inoculated in petridishes poured with Sabouraud's Dextrose Agar (SDA) with and without Cycloheximide and Chloramphenicol (HI Media B. No. 9039) incubated at 37+1°C for 72 hours. Microscopic examination of 4 days old culture showed globose, short, ovoid sometimes elongated blastoconidia (3–6 µm) on corn meal agar. Reynold's–Braude phenomenon was observed by incubating

blastoconidia in human serum at 37°C and germination was found to be more than 70%.

Fermentation and assimilation test further confirmed the identity of the species as *C. albicans*. However, for contamination, if any, petridishes poured with SDA in four replicates were exposed to the environment which gave few mycelial fungi dominated by species of *Aspergillus*, but there was no *C. albicans* in the working environment.

Method of preparation of forbidden foodstuffs

All the forbidden edible items mentioned above were converted to very fine dry powder (except lemon in which the pulp was first extracted, then dried to remove the moisture content) and weighed 500 mg using electronic balance (CAMRY-Model EHA701: d = 0.01 g) and dissolved/mixed in 5 ml distilled water. This mixture was autoclaved at 15-pound pressure.

5 µl of this autoclaved mixture of each forbidden item was mixed with 5 µl of *Mezereum 200* so that the total mixture was 10 µl.

Methodology

Disc method was used to assess the impact of all the forbidden edible items in question on the efficacy of homoeopathic medicine *Mezereum 200* in *in vitro* conditions against human pathogenic *C. albicans* using 'Inhibition Zone Technique'.^[14,15]

20 ml sterilised SDA was plated on 30 sterilised petridishes and allowed to solidify. 1 ml of seeded culture broth was mixed well and poured over the surface of all the petridishes already plated with medium. The discs (12 mm in diameter) of sterilised Whatman No. 1 filter paper dipped in mixture of *Mezereum 200* (5 µl) and every forbidden item (5 µl) were placed on the centre of each petridish separately. Discs soaked in *Mezereum 200* (5 µl) and rectified spirit (vehicle) were kept as control.

Petridishes were then incubated at 37+1°C for 72 hours. The impact of forbidden item on the efficacy of homoeopathic medicine *Mezereum 200* was judged by comparing the zone of inhibition on the growth of *C. albicans* produced by *Mezereum 200* alone to the zone of inhibition produced by *Mezereum 200* admixed with forbidden item. An appreciable reduction in the zone of inhibition by *Mezereum 200* admixed with forbidden item as compared with that of *Mezereum 200* alone was considered as negative impact of the forbidden item on the action of *Mezereum 200*. Similarly, same zone of inhibition was considered as no impact while increase in the same was considered as positive impact on the inhibition in growth of human pathogenic fungus *C. albicans* by *Mezereum 200*.

The experiment was repeated three times and the mean effective area of zone of inhibition was calculated.

RESULTS

The results of these experiments have shown that there is no visible effect of forbidden item in question on the inhibition in growth of pathogenic fungus *C. albicans* by homoeopathic

medicine *Mezereum 200* in biological experimental model in *in vitro* condition.

Forbidden items alone did not produce any appreciable zone of inhibition [Table 1 and Figure 1]. The zone of inhibition shown by *onion*, *cardamom*, *clove*, *caraway*, *blackpepper*, *asafoetida*, *red chilli*, *green chilli*, *turmeric*, *lemon* and *camphor* against *C. albicans* was 12 mm (equal to disc diameter) similar to rectified spirit (vehicle/control). *Ginger* and *fenugreek* showed 13 mm inhibition and *garlic* 13.5 mm.

The zone produced by *Mezereum 200* mixed with these items was almost same as shown by *Mezereum 200* alone [Table 2 and Figure 2]. The zone of inhibition shown by *garlic* (39.72 mm), *onion* (39.56 mm), *caraway* (39.26 mm), *fenugreek* (39.89 mm), *red chilli* (39.62 mm), *green chilli* (39.38 mm), *lemon* (39.86 mm) and *camphor* (39.17 mm) mixed with *Mezereum 200* was slightly more than *Mezereum 200* alone while that of *cardamom* (37.99 mm), *clove* (35.25 mm), *ginger* (36.37 mm), *blackpepper* (37.99 mm), *asafoetida* (35.87 mm) and *turmeric* (37.77 mm) was slightly less than that *Mezereum 200* alone.

DISCUSSION

Even in the present scientific era of evidence-based medicine where seeing is believing is the main motto majority of homoeopathic physicians, as a tradition, are prohibiting intake of certain edible items during homoeopathic treatment which was started by their predecessors for a reason better known to them. These stereotyped practitioners never bothered to inquire whether there is any scientific basis behind such restrictions. It was also a big question whether, by any means such phenomenon, if any, be proved either in human subjects or in some experimental model. The involvement of psychological factor and number of variables were the main bottleneck behind not conducting such study on human subjects. Moreover, it was also difficult to quantify the amount of forbidden item taken by the subject. Over and above, certain prohibited food item may act as disease-modifying substance.

Thus, to prove or disprove the authenticity of such dietary restrictions, an experiment was planned by the research team to be conducted in the Medical Mycology Laboratory of GCCHR, Lucknow to demonstrate the effect of some frequently prohibited items on the efficacy of homoeopathic medicine, *Mezereum 200*, on the inhibition in the growth of human pathogenic fungus *C. albicans* in *in vitro* biological experimental model.

The results of these experiments have shown that there is no significant effect of these forbidden items on the inhibition in growth of human pathogenic fungus *C. albicans* by homoeopathic medicine *Mezereum 200* in *in vitro* conditions.

The available literature has evidence of anti-fungal activity of onion, cardamom, clove, caraway, black pepper, asafoetida, turmeric, lemon and camphor and many more edible items in *in vitro* conditions.

Table 1: Impact of forbidden edible items alone on the growth of *Candida albicans* in comparison to *Mezereum 200* assessed by “Inhibition Zone Technique” (Diameter of disc=12 mm)

Control	Forbidden edible item	Zone of Inhibition against <i>Candida albicans</i> (in mm diameter)
<i>Mezereum 200</i>	-	38.37 mm
Rectified spirit	-	12.00 mm
-	Garlic	13.50 mm
-	Onion	12.00 mm
-	Cardamom	12.00 mm
-	Clove	12.00 mm
-	Caraway	12.00 mm
-	Ginger	13.00 mm
-	Fenugreek	13.00 mm
-	Black pepper	12.00 mm
-	Asafoetida	12.00 mm
-	Red chilli	12.00 mm
-	Green Chilli	12.00 mm
-	Turmeric	12.00 mm
-	Lemon	12.00 mm
-	Camphor	12.00 mm

Table 2: Impact of forbidden edible items admixed with *Mezereum 200* on the growth of *Candida albicans* in comparison to *Mezereum 200* alone assessed by “Inhibition Zone Technique” (Diameter of disc=12 mm)

Control	Homoeopathic drug + Forbidden edible item	Zone of Inhibition against <i>Candida albicans</i> (in mm diameter)
<i>Mezereum 200</i>	-	38.37 mm
Rectified spirit	-	12.00 mm
-	<i>Mezereum 200</i> + Garlic	40.72 mm
-	<i>Mezereum 200</i> + Onion	39.56 mm
-	<i>Mezereum 200</i> + Cardamom	37.99 mm
-	<i>Mezereum 200</i> + Clove	35.25 mm
-	<i>Mezereum 200</i> + Caraway	39.26 mm
-	<i>Mezereum 200</i> + Ginger	36.37 mm
-	<i>Mezereum 200</i> + Fenugreek	40.89 mm
-	<i>Mezereum 200</i> + Black pepper	37.99 mm
-	<i>Mezereum 200</i> + Asafoetida	35.87 mm
-	<i>Mezereum 200</i> + Red chilli	40.62 mm
-	<i>Mezereum 200</i> + Green Chilli	40.38 mm
-	<i>Mezereum 200</i> + Turmeric	37.77 mm
-	<i>Mezereum 200</i> + Lemon	39.86 mm
-	<i>Mezereum 200</i> + Camphor	40.17 mm

Tagoe, Nyarko and Akpaka, in 2011 demonstrated in an *in vitro* experimental work that water-soluble extracts of onion, ginger and garlic have antifungal properties and are capable of inhibiting the growth of *Aspergillus flavus*, *Aspergillus niger* and *Cladosporium herbarum*.^[16]

Kocić *et al.* in 2017 demonstrated that Essential Oil (EO) of onion at a concentration of 28.0 µL/100 mL has fungicidal effect

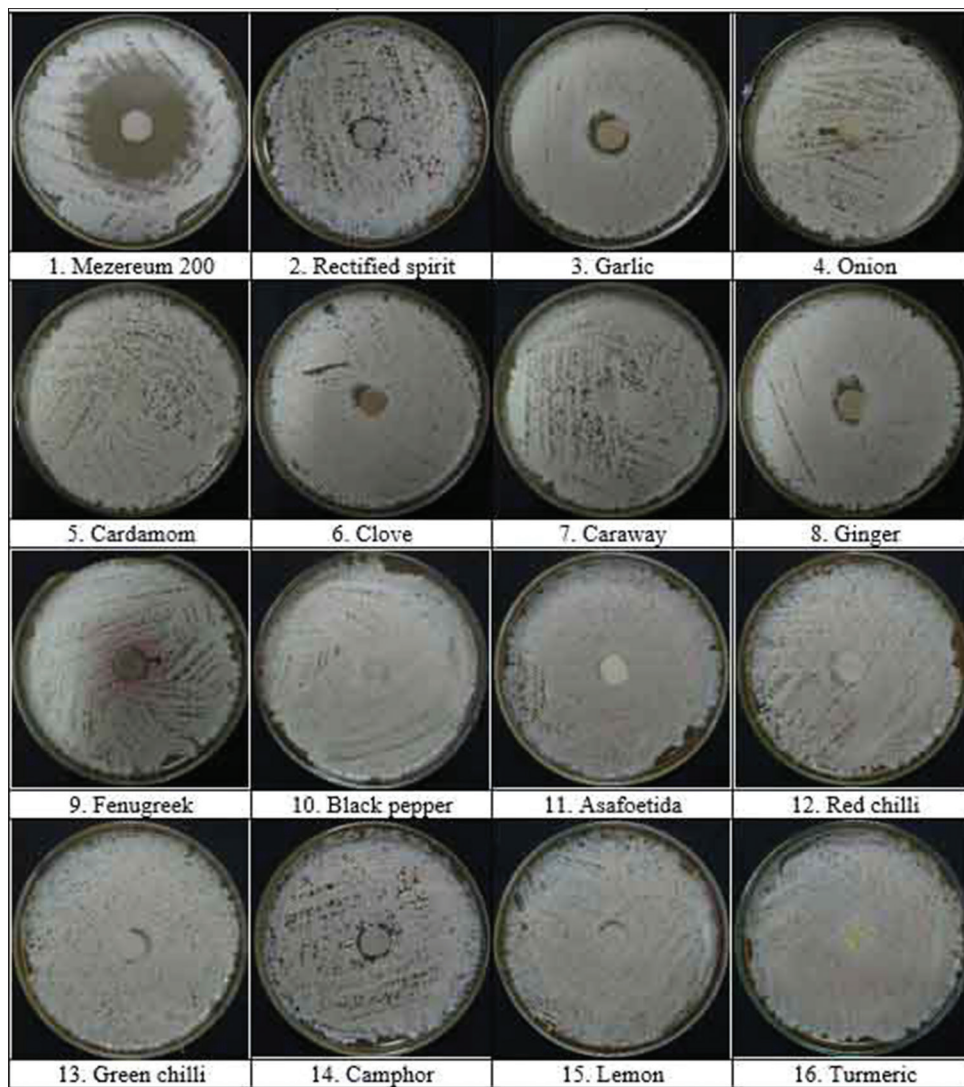


Figure 1: Impact of forbidden edible items alone on the growth of *Candida albicans* in comparison to *Mezereum* 200 assessed by 'Inhibition Zone Technique'

on the growth of *Aspergillus carbonarius*, *Aspergillus wentii*, *Aspergillus versicolor*, *Penicillium brevicompactum*, *Penicillium glabrum*, *Penicillium chrysogenum* and *Fusarium* spp. and an inhibitory effect on *A. niger* and *Penicillium aurantiogriseum*.^[17]

Pinto *et al.* in 2009 concluded that clove EO, its main component, eugenol obtained from *Syzygium aromaticum* has inhibitory activity against *Candida*, *Aspergillus* and dermatophyte.^[18]

The results of screening by Rabadia *et al.* in 2011 indicated that EOs of black pepper, cardamom, cumin, boswellia and patcholi inhibited fluconazole-resistant fungal strains in varying degrees of dilutions. EO of Boswellia was found to be the most effective against *Candida tropicalis* and that of black pepper and cardamom against *Trichophyton mentagrophytes*.^[19]

Dimić *et al.* in 2009 concluded that caraway extract strongly inhibited the growth of *Emericella nidulans*, *Penicillium commune* and *Penicillium implicatum* at the concentration of 0.1% and *Aspergillus tamarii* at the concentration of 0.5%

during 7 days of incubation at 25°C. The extract of garlic only partially inhibited the growth of *A. tamarii* and *P. commune* but completely inhibited the growth of *P. implicatum* and *E. nidulans* at the doses of 0.5 and 1%. Oregano extract partially inhibited all mould species, significantly reducing the growth of colonies, especially *E. nidulans*.^[20]

Omezzine *et al.* in 2014 evaluated the antifungal activity of methanolic extracts of aerial parts of fenugreek and found it highly active against *Fusarium oxysporum* f. sp. *radicis-lycopersici* (FORL) and *F. oxysporum* f. sp. *lycopersici* (FOL).^[21]

Sitara *et al.* in 2008 evaluated the antifungal activity of EOs extracted from the seeds of neem, mustard, black cumin and asafoetida at 0.5, 0.1 and 0.15% concentration against eight seed borne fungi namely *Aspergillus niger*, *A. flavus*, *F. oxysporum*, *F. moniliforme*, *F. nivale*, *F. semitectum*, *Drechslera hawaiiensis* and *Alternaria alternata*. Of these oils, *Asafoetida* oil at 0.1% and 0.15% concentration significantly

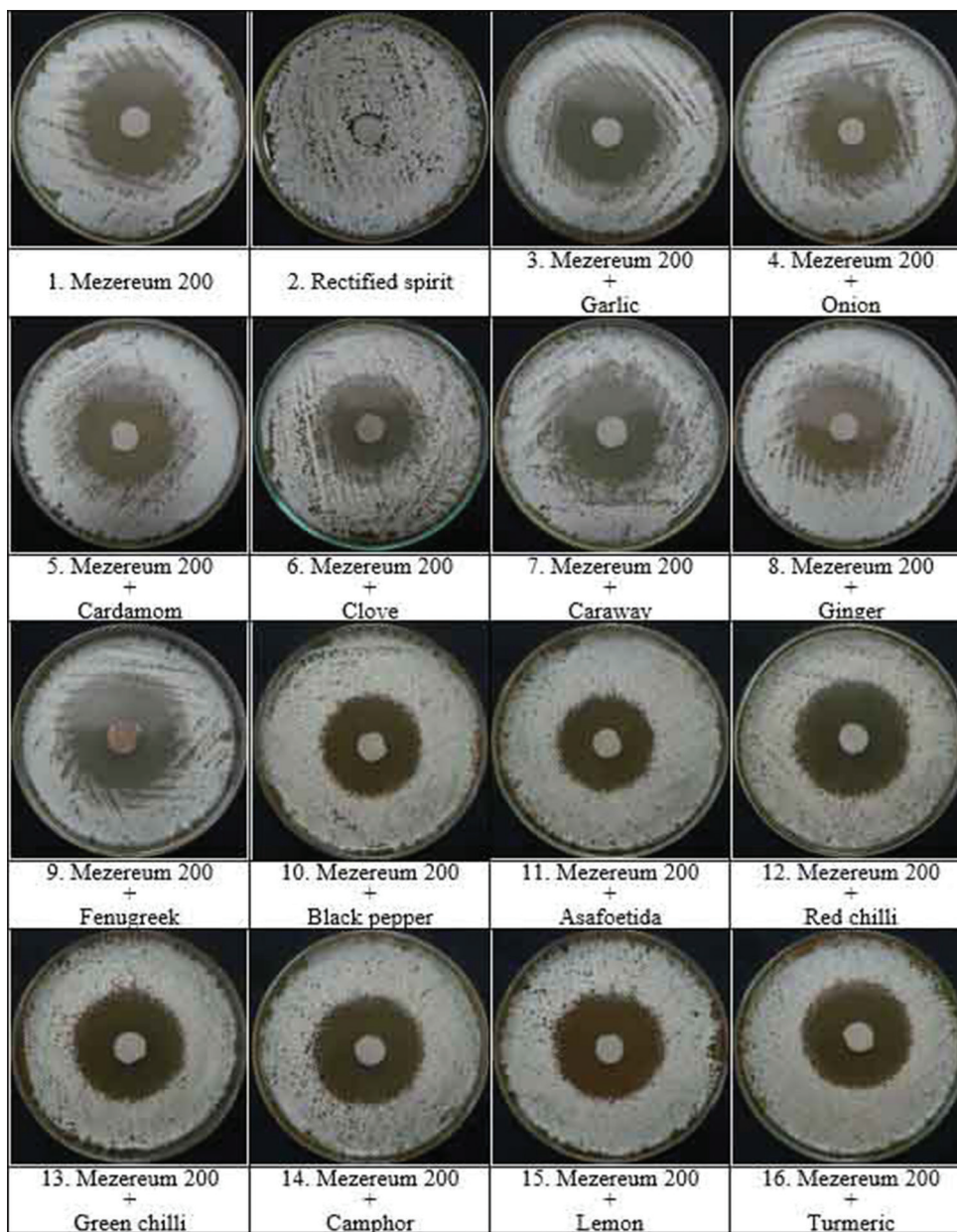


Figure 2: Impact of forbidden edible items admixed with *Mezereum* 200 on the growth of *Candida albicans* in comparison to *Mezereum* 200 alone assessed by 'Inhibition Zone Technique'

inhibited the growth of all test fungi except *A. flavus*. Black cummin oil at 0.15% was also effective but showed little fungicidal activity against *A. niger* followed by neem while Mustard oil did not show any fungicidal activity.^[22]

Martos *et al.* in 2008 demonstrated the antifungal activity of EOs of lemon, mandarin, grapefruit and orange on the growth of moulds commonly associated with food spoilage: *Aspergillus niger*, *A. flavus*, *P. chrysogenum* and *Penicillium verrucosum*, using the agar dilution method.^[23]

Li *et al.* in 2014 demonstrated that the extracts from the xylem parts of camphor plant had antifungal activity against *Corioli* *versicolor* and *Gloeophyllum trabeum*. Thus, it could provide a renewable source for wood preservatives.^[24]

Apisariyakul *et al.* in 1995 studied antifungal activity of turmeric oil against 15 isolates of dermatophytes. The inhibitory activity of turmeric oil was tested in *Trichophyton*-induced dermatophytosis in guinea pigs. The results showed that all 15 isolates of dermatophytes could be inhibited by turmeric oil at dilutions of 1:40–1:320. The other four isolates of pathogenic fungi were inhibited by turmeric oil at dilutions of 1:40–1:80. All six isolates of yeasts tested proved to be insensitive to turmeric oil.^[25]

Nascimento *et al.* in 2000 evaluated the antimicrobial activity of plant extracts of yarrow, clove, lemon-balm, basil, guava, pomegranate, rosemary, sage, jambolan, thyme and phytochemicals such as benzoic acid, cinnamic acid,

eugenol and farnesol with antibiotic susceptible and resistant microorganisms. The highest antimicrobial potentials were observed for the extracts of clove and jambolan which inhibited 64.2 and 57.1% of the tested microorganisms respectively. *Pseudomonas aeruginosa* was inhibited by clove, jambolan, pomegranate and thyme extracts. This inhibition was observed with the individual extracts and when they were used in lower concentrations with ineffective antibiotics.^[26]

The above reports confirm direct effect of garlic, onion, cardamom, clove, caraway, ginger, fenugreek, black pepper, asafoetida, turmeric, lemon and camphor on various pathogenic strains of filamentous fungi but none of the experiment was conducted against yeast-like fungi in general and *C. albicans* in particular except by Pinto *et al.* who demonstrated the antifungal activity of clove EO, obtained from *Syzygium aromaticum*. The EO analysed showed a high content of eugenol (85.3%) while in the present study only 5 µl of crude clove solution was used. It is a matter of further research whether high content of eugenol in clove EO is responsible for the inhibition of germ tube formation by *C. albicans*.

From time immemorial, extracts isolated from different natural resources especially plants have always been a rich arsenal for controlling fungal infections and spoilage. Due to extensive traditional use of *turmeric* in food products various researches have been done to study the antifungal activity of *turmeric* and *cucurmin*. As per available literature, turmeric powder when added in plant tissue culture at concentration of 0.8 and 1.0 g/L had appreciable inhibitory activity against fungal contaminations.^[27] Methanol extract of *turmeric* showed antifungal activity against *Cryptococcus neoformans* and *C. albicans* with MIC value of 128 and 256 µg/mL, respectively,^[28] which again is much higher than concentration of crude *turmeric* in 5 µl solution.

Since this experiment was planned with an objective to observe whether various forbidden edible items such as garlic, onion, cardamom, clove, caraway, ginger, fenugreek, black pepper, asafoetida, red chilli, green chilli, turmeric, lemon and camphor by any means hinder, neutralise or annihilate the action of *Mezereum 200* in inhibiting the of growth of human pathogenic fungus *C. albicans*, the concentration of all items, rectified spirit (vehicle/control) and *Mezereum 200*, was kept same i.e., 5 µl.

This particular experiment was conducted with yeast-like fungus *C. albicans* while in almost all the other experiments cited above with reference to edible items were conducted either on pathogenic strains of filamentous fungi or on dermatophytes. It is a matter of research that whether a similar low concentration (5 µl) of forbidden items alone in question by any means inhibit the growth of filamentous fungi too. Moreover, further experiment needs to be conducted to elicit whether much higher concentration of forbidden items alone by any means inhibit the growth of *C. albicans*. However, both these aspects are beyond the scope of this experimental study.

The outcome of this preliminary effort to observe the effect of various forbidden items on the efficacy of *Mezereum 200* in the inhibition of growth of human pathogenic *C. albicans* boosted our morale to undertake a few more *in vitro* studies. The other in this series is to study the impact of a few inebriants such as tea, coffee, tobacco and bhang.^[29] Further, in this series, the work on impact of certain allopathic medicines such as antibiotics, steroids and analgesics on the efficacy of homoeopathic medicines in *in vitro* conditions is in progress.

CONCLUSION

The results achieved in this experiment remove the prevailing concept of prohibiting intake of various foodstuffs merely on hypothesis that they neutralise or annihilate the action of homoeopathic medicines by some interaction or due to their odour, taste and chemical composition etc.

This experiment will also remove the misconception that Homoeopathy is nothing but placebo therapy or psychotherapy.

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Conflicts of interest

None declared.

REFERENCES

- Barrett S, Tyler VE. Why pharmacists should not sell homeopathic remedies. *Am J Health Syst Pharm* 1995;52:1004-6.
- Collin LN. Injustice to homeopathy practitioners and the public. *Pharm J* 2002;268:326.
- McDermott JH, Riedlinger JE, Chapman E. What pharmacists should understand about homeopathic remedies. *Am J Health Syst Pharm* 1995;52:2442-5.
- Needleman DB. An uninformed tirade against homeopathy. *Pharm J* 2005;268:326.
- Sturgess R. Is it possible to move towards a consensus on homeopathy? *Pharm J* 2002;269:138.
- Chavez ML, Chapman RL. Homeopathy. *Hosp Pharm* 1998;33:41-50.
- Pharmacy and Apotex Continuing Education. Homeopathy. *Can Pharm J* 1997;130:28.
- Riedlinger JE, Lennihan B. Homeopathic remedies. In: Berardi RR, Kroon LA, McDermott JH, *et al.*, editors. *Handbook of Nonprescription Drugs: An Interactive Approach to Self-Care*. 15th ed., Ch. 55. Washington, DC: American Pharmaceutical Association; 2006. p. 1167-93.
- Harrison J. Should pharmacists sell homeopathic products? *Can Pharm J* 1998;131:40-6.
- Dillon RL. Homeopathy? Absurd! *Am J Health Syst Pharm* 1996;53:1336-9.
- Pray WS. The challenge to professionalism presented by homeopathy. *Am J Pharm Educ*. 1996; 60: 198-204.
- Whitaker S. If we endorse quack cures we really deserve to be dubbed "Baddy Chemists". *Pharm J* 2002;268:288.
- Gupta G, Srivastava AK, Gupta N, Gupta G, Mishra S. Anti-candidal activity of homoeopathic drugs: An *in vitro* evaluation. *Indian J Res Homoeopathy* 2015;9:79-85.
- Leben C, Kiett GW. A bioassay for Tetramethylthiuram disulphide. *Phytopathology* 1950;40:950-4.
- Nene YL, Thapliyal PN. *Fungicides in Plant Disease Control*. New Delhi, India: Oxford and IBH Publishing Co.; 1979. p. 507.
- Tagoe DN, Nyarko HD, Akpaka R. A comparison of the antifungal properties of onion (*Allium cepa*), ginger (*Zingiber officinale*) and

- garlic (*Allium sativum*) against *Aspergillus flavus*, *Aspergillus niger* and *Cladosporium herbarum*. *Res J Med Plants* 2011;5:281-7.
17. Kocić-Tanackov S, Dimić G, Mojović L, Gvozdanić-Varga J, Djukić-Vuković A, Tomović V, *et al.* Antifungal activity of the onion (*Allium cepa* L.) essential oil against *Aspergillus*, *Fusarium* and *Penicillium* species isolated from food. *J Food Process Preserv* 2017;41. [doi: 10.1111/jfpp.13050].
 18. Pinto E, Vale-Silva L, Cavaleiro C, Salgueiro L. Antifungal activity of the clove essential oil from *Syzygium aromaticum* on *Candida*, *Aspergillus* and dermatophyte species. *J Med Microbiol* 2009;58:1454-62.
 19. Rabadia AG, Kamat SD, Kamat DV. Antifungal activity of essential oils against Fluconazole resistant fungi. *Int J Phytomed* 2011;3:506-10.
 20. Dimić GR, Kocić-Tanackov SD, Pejin DJ, Pejin JD, Tanackov IJ, Tuco D. Antimicrobial activity of caraway, garlic and oregano extracts against filamentous moulds. *Acta Period Technol* 2009;40:9-16. [doi: 10.2298/APT0940009D].
 21. Omezzine F, Bouaziz M, Daami-Remadi M, Simmonds MSJ, Haouala R. Chemical composition and antifungal activity of *Trigonella foenum-graecum* L. varied with plant ploidy level and developmental stage. *Arabian J Chem* 2014;10:S3622-31. [doi: 10.1016/j.arabj.2014.03.013].
 22. Sitara U, Niaz I, Naseem J, Sultana N. Antifungal effect of essential oils on *in vitro* growth of pathogenic fungi. *Pak J Bot* 2008;40:409-14.
 23. Viuda-Martos M, Ruiz-Navajas Y, Fernández-López J, Pérez-Álvarez J. Antifungal activity of lemon (*Citrus lemon* L.), mandarin (*Citrus reticulata* L.), grapefruit (*Citrus paradisi* L.) and orange (*Citrus sinensis* L.) essential oils. *Food Control* 2008;19:1130-8. [doi: 10.1016/j.foodcont.2007.12.003].
 24. Li Q, Wang X, Lin J, Liu J, Jiang M, Chu L. Chemical composition and antifungal activity of extracts from the xylem of *Cinnamomum camphora*. *Biol Resour* 2014;9:2560-71. Available from: http://ojs.cnr.ncsu.edu/index.php/BioRes/article/view/BioRes_09_2_2560_Li_Chemical_Composition_Antifungal/2672. [Last accessed on 2018 Jun 12].
 25. Apisariyakul A, Vanittanakom N, Buddhasukh D. Antifungal activity of turmeric oil extracted from *Curcuma longa* (Zingiberaceae). *J Ethnopharmacol* 1995;49:163-9.
 26. Nascimento GG, Locatelli J, Freitas PC, Silva GL. Antibacterial activity of plant extracts and phytochemicals on antibiotic-resistant bacteria. *Braz J Microbiol* 2000;31:247-56.
 27. Upendra RS, Khandelwal P, Reddy AH. Turmeric powder (*Curcuma longa* Linn.) as an antifungal agent in plant tissue culture studies. *Int J Eng Sci* 2011;3:7899-904.
 28. Ungphaiboon S, Supavita T, Singchangchai P, Sungkarak S, Rattanasuwan P, Itharat A. Study on antioxidant and antimicrobial activities of turmeric clear liquid soap for wound treatment of HIV patients. *Songklanakarin J Sci Technol* 2005;27:269-578.
 29. Gupta G, Srivastava AK, Gupta N, Gupta G, Mishra S. *In vitro* evaluation of impact of forbidden items on the efficacy of homoeopathic medicines. *Adv Homoeopath Res* 2017;2:16-22.

होम्योपैथी दवाओं की प्रभावकारिता पर वर्जित खाद्य सामग्री का प्रभाव: एक इन-विट्रो मूल्यांकन

पृष्ठभूमि

पूर्व में होम्योपैथिक दवाओं की 30 व 200 पोटेंसी द्वारा कैंडिडा अल्बिकन्स के विकास के निषेध पर स्क्रीनिंग प्रयोग किए जा चुके हैं। डिस्क प्रक्रिया द्वारा मानक एंटीफंगल केटाकोनाजोल, संशोधित स्पीरिट व आसुत जल को नियंत्रण के रूप में रखते हुए व होम्योपैथिक औषधि से उपचारित कल्चरल प्लेट में 'जोन ऑफ इन्हाइबिशन' की तुलना करने पर कैंडिडा अल्बिकन्स के विकास के लिए मेजेरियम 200 ने अधिकतम अवरोध दिखाया था।

उद्देश्य: मानव रोगजनक कवक सी. अल्बिकन्स की वृद्धि में मेजेरियम 200 की प्रभावकारिता पर विभिन्न वर्जित खाद्य सामग्री के प्रभाव का निरीक्षण करना।

सामग्री व विधि

मुँह के अल्सर से पीड़ित रोगियों से एकत्रित नमूनों को कवक उगाने के लिए 37 + 10सी पर 15 दिनों के लिए रखा गया और कैंडिडा अल्बिकन्स में वृद्धि देखी गई। 500 मि.ग्रा. प्रतिबंधित वस्तुओं का बारीक पाऊडर 5 मि.लि. आसुत जल में मिश्रित किया गया। प्रत्येक वस्तु के ऑटोक्लेव का 5µl, 5µl मेजेरियम 200 के साथ मिलाया गया। डिस्क विधि द्वारा कैंडिडा अल्बिकन्स के विरुद्ध इन-विट्रो स्थितियों में होम्योपैथिक दवा मेजेरियम 200 की प्रभावकारिता पर प्रतिबंधित वस्तुओं के प्रभाव का आकलन करने के लिए 'इन्हाइबिशन जोन तकनीक' का उपयोग किया गया।

परिणाम:

इस इन-विट्रो प्रयोग से पता चलता है कि मेजेरियम 200 पर निषिद्ध वस्तुओं का कोई अवरोधक प्रभाव नहीं है जिससे कैंडिडा अल्बिकन्स के विकास में बाधा आए।

निष्कर्ष:

इस प्रयोग से यह स्पष्ट होता है कि होम्योपैथिक औषधि के प्रभाव पर प्रतिबंधित वस्तुओं का कोई हस्तक्षेप नहीं है।

Impact des produits alimentaires interdits sur l'efficacité des médicaments homéopathiques : une évaluation in vitro

Contexte: Lors des expériences de criblage précédentes, parmi certains médicaments homéopathiques 30 ou 200 CH, Mezereum 200 a montré une inhibition maximale du développement de *Candida albicans* lors de la comparaison avec la 'Zone d'inhibition' dans les plaques de culture traitées avec des médicaments homéopathiques tout en gardant l'antifongique standard Ketoconazole, de l'alcool rectifié et de l'eau distillée comme contrôle au moyen de la méthode Disc. **Objectif:** Cette étude expérimentale *in vitro* a été conduite dans le laboratoire de mycologie médicale de GCCHR afin d'observer les effets de divers produits alimentaires défendus/interdits durant un traitement homéopathique (Mezereum 200).

Matériels et méthodes: Des échantillons prélevés sur des patients souffrant d'ulcères buccaux ont été incubés pendant 15 jours à 37 + 1°C pour le développement de champignons, le cas échéant. Des *Candida albicans* se sont développés. Préparation des produits défendus: 500 mg de produits défendus broyés finement ont été dissous/mélangés à 5 ml d'eau distillée. 5 µl d'une solution de chaque produit stérilisée dans un autoclave ont été mélangés à 5 µl de Mezereum 200. La méthode Disc a été utilisée pour évaluer l'impact des produits défendus sur l'efficacité du médicament homéopathique Mezereum 200 dans des conditions *in vitro* pour lutter contre le *Candida albicans* au moyen de la « Technique de la zone d'inhibition ».

Résultat: Les résultats de cette expérience *in vitro* ont montré qu'il n'y a pas d'effet inhibiteur des produits défendus en question sur Mezereum 200 entraînant l'inhibition du développement de *Candida albicans*. Conclusion : à partir de cette expérience, il est évident que les produits défendus n'ont aucune incidence sur l'effet d'un médicament homéopathique.

Impacto de los alimentos prohibidos en la eficacia de los medicamentos homeopáticos: una evaluación in-vitro

Fundamento

Con anterioridad, se han realizado experimentos sobre medicamentos homeopáticos en potencias de 30 y 200 en cuanto a la inhibición del crecimiento de *Candidaalbicans*. Aplicando el método de disco, se constató que *Mezereum 200* mostraba la inhibición máxima del crecimiento de *Candidaalbicans* al comparar la "zona de inhibición" entre las placas de cultivo con los medicamentos homeopáticos y las placas de control (con ketoconazol, alcohol rectificado y agua destilada). Este estudio *in vitro* se efectuó en el laboratorio Medical Mycology del GCCHR para observar el efecto de diferentes alimentos productos prohibidos durante el tratamiento homeopático.

Materiales y métodos

Las muestras recogidas de pacientes con úlceras orales se incubaron durante 15 días a 37+1oC para comprobar si había un crecimiento micótico. Se obtuvo el crecimiento de *Candidaalbicans*. Se disolvieron y mezclaron 500 mg de productos prohibidos en polvo fino en 5 ml de agua destilada.

5 µl de solución de autoclave de cada producto se mezcló con 5 µl de *Mezereum 200*. Se aplicó el método de disco para evaluar el impacto de los productos prohibidos en la eficacia del medicamento homeopático *Mezereum 200* en condiciones *in vitro* frente a *Candidaalbicans* con la "técnica de la zona de inhibición".

Resultados

El resultado de este experimento *in vitro* ha mostrado que los correspondientes productos prohibidos no tuvieron efectos inhibidores en la eficacia de *Mezereum 200* en provocar la inhibición del crecimiento de *Candida albicans*.

Conclusiones

En este experimento, se ha evidenciado que no hay interferencia por parte de los productos prohibidos en la acción del medicamento homeopático.

Auswirkungen verbotener Lebensmittel auf die Wirksamkeit homöopathischer Arzneimittel: Eine In-vitro-Bewertung

Hintergrund: In früheren Screening - Experimenten zeigte Mezereum 200 von einigen homöopathischen Arzneimitteln in 30 und 200 Potenzen eine maximale Hemmung des Wachstums von *Candida albicans* beim Vergleich der "Zone der Hemmung" in Kulturplatten, die mit homöopathischen Arzneimitteln behandelt Halten von Standard-Antimykotika Ketoconazol, rektifiziertem Alkohol und destilliertem Wasser als Kontrolle durch Verwendung der Disc-Methode

Ziel: Diese experimentelle In-vitro-Studie wurde im Labor für medizinische Mykologie durchgeführt. von GCCHR, um die Wirkung verschiedener während der homöopathischen Behandlung verbotener / verbotener Substanzen (Mezereum 200) zu beobachten.

Materialien und Methoden: Die von Patienten, die an oralen Geschwüren leiden, entnommene Probe wurde 15 Tage lang bei $37 \pm 1^\circ\text{C}$ für das Wachstum von Pilzen, falls vorhanden, inkubiert. Das Wachstum von *Candida albicans* wurde erhalten. Vorbereitung der verbotenen Gegenstände: 500 mg fein pulverisierte verbotene Gegenstände wurden in 5 ml destilliertem Wasser gelöst / gemischt. 5 μl autoklavierte Lösung von jedem Gegenstand wurde mit 5 μl Mezereum 200 gemischt. Disc-Methode wurde verwendet, um die Auswirkungen der verbotenen Gegenstände auf die Wirksamkeit der homöopathischen Medizin Mezereum 200 in-vitro-Bedingungen gegen *Candida albicans* von "Inhibition Zone Technik" zu bewerten.

Ergebnisse: Das Ergebnis dieses In-vitro-Experiments hat gezeigt, dass es keine hemmende Wirkung von verbotenen Substanzen auf Mezereum 200 gibt, die eine Hemmung des Wachstums von *Candida albicans* verursachen.

Schlussfolgerung: Aus diesem Experiment geht hervor, dass keine verbotenen Gegenstände auf die Wirkung der homöopathischen Medizin einwirken.