

## DEPRESSION- GUT RELATED & NOT PSYCHOLOGICAL

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### ABSTRACT

It was categorized as an 'affective' disorder as it affected the mood of a person. Affective aspect of the mind is a component of 'attitude' that has three elements. The 'feeling' component is the 'affective' aspect of attitude. This 'affective' disorder was renamed as a 'mood' disorder. The mood changes were attributed to depression related disorders. This article focuses on the relations between the gut & the brain or in fact the mind itself. One environmental toxin catalyses one gut bacterium & the gut bacterium induce the inflammatory marker which in turn affects the mood causing depression. Thereafter it deals with a solution through homoeopathy which is a individualized system of treatment. Further, the same bacterium or two bacteria from the Moganii families are used as homoeopathic medicines since the mid 19<sup>th</sup> century. It focuses on the details of these two medicines & aligns with the issue of depression.

**KEYWORDS:** Depression, Morganella Morganii, DEA, IL-6, Bowel Nosodes, Homoeopathy.

### INTRODUCTION

Depression is a neurotic disorder categorized under mood disorder in the domain of psychiatry. Globally, it affects 5% of adults with women experiencing it more than men. About 280 million people worldwide suffer from depression. It is thought that COVID 19 has increased the prevalence by 25%. In India, it affects 4.5% of the total population as per WHO. The prevalence is 2.7% in India as per the National Mental Health Survey done by National Institute of Mental Health & Neurological Sciences (NIMHANS), Bengaluru in 2015-16. The survey covered the states of Punjab & UP in the North, Tamil Nadu & Kerala in the

South, Jharkhand & West Bengal in the East, Rajasthan & Gujarat in the West, MP & Chhatisgarh in the Central, Assam & Manipur in the North East.<sup>[1-6]</sup>

Through a small contaminant modified liquid molecule, scientists have discovered a new link between gut bacteria & depression. Environmental chemicals in the gut fuels immune responses related to mental health. Researchers from the Harvard & the broad institute focused on 'Morganella Morganii', a gut bacteria previously linked to depression, T2 diabetes & Irritable Bowel Disease (IBD). Using a bioassay approach, the study discovered that unusual phospholipids made by M.

Morganii that connects the bacterium to mental health. These lipids mimic cardiolipins but include an environmental contaminant called as Di-Ethanol-Amine (DEA) instead of the usual glycerol.<sup>[7]</sup> Usually, glycerol is in the center but here it is replaced by DEA.

M. Morganii adds the chemical DEA to its lipids or fats, it changes the molecule in a way that triggers the body's immune system. The study found that the newly formed molecule turns on special sensors in immune cells called Toll Like Receptor (TLR) 1 & 2. After these sensors are activated, the immune cells release a substance called InterLeukin-6 (IL-6). IL 6 causes inflammation that is linked to depression in genetic studies there by suggesting it plays a role in mental health. The gut micro-biome is linked with depression earlier but in this study, it is linked to molecular level.<sup>[7]</sup>

Special lipids from M. Morganii known as MmDEACLs initiates the immune system by attaching to two receptors TLR1 & 2 & these two receptors split the bacterial molecules. Thus, the release of IL6 starts & this is a signaling protein linked to long term inflammation & immune related illnesses. The version of these lipids containing DEA causes a strong IL6 response. Small changes in the shape of the fatty acid chains like having a double bond instead of a ring made a big difference in how strongly the immune system reacted. Thus, it shows that our immune system can pick up very fine molecular details in bacterial chemicals. The study cites strong molecular evidence that gut bacteria altered by environmental pollutants influences immune pathways linked to depression.<sup>[7]</sup>

Long term exposure to inflammatory signals like IL-6 has been linked to depression. Raised IL-6 levels are often found in people with major depressive disorder & disrupts normal brain signaling especially in mood related areas like the 'hippocampus' & the 'pre-frontal cortex'. Chronic inflammation sparked by environmental contaminants processed by gut bacteria act as a biological trigger for depression in some individuals. This means that rather than being purely psychological, these cases are expected to respond better to treatments targeting the immune system. This is the highlighted area of the article & homoeopathy is the better way to target the immune system.<sup>[8]</sup>

Earlier studies have shown that individual's gut bacteria & their molecules were associated with inflammation, immune modulation & disease outcomes. Further it strengthens the gut-immune-brain concept by adding a contaminant mediated chemical phenomena. A common bacterium like M. Morganii transforms DEA into an immune stimulating molecule it creates a new layer of interaction between pollution, the micro-biome & the immune system. This is regarding public health issues on chemical exposure shaping disease risks.<sup>[7]</sup>

The areas to be explored beyond the above-mentioned study are to determine how often the above-mentioned phenomena occur in depressed individuals & whether blocking the inflammatory pathway ameliorates the symptoms. More areas like whether gut microbes use similar chemical substitutions & what portion of depression cases involves this contaminant inflammation route. Next areas like other bacteria are to be surveyed to examine whether these bacteria do similar chemistry while finding other examples of metabolites affecting human beings. Currently, the study found out how a gut bacterium turns a common contaminant into a pro inflammatory agent. Similarly, the complex make up of mental health disorders has been elicited thus opening novel ways to detect & treat these mental disorders. Homoeopathy is the novel way of treatment highlighted by the current article.<sup>[7]</sup>

### Homoeopathic dimension

M. Morganii is a Bowel Nosode in homoeopathy. M. Morganii is a gram negative facultative anaerobe found in both the environment & intestinal tract is conventionally regarded as an opportunistic pathogen. Nosodes are the group of medicines that are prepared from the disease causing organisms or their by products. The bowel nosodes are a series of remedies made from non-lactose forming bacteria of the human intestinal flora. The other Morganii is Proteus Morganii. Homoeopathy uses these bacteria as medicines since the mid 20<sup>th</sup> century.<sup>[9-21]</sup>

The bowel nosodes were first developed by Dr. Edward Bach (1886-1936) and continued by John Paterson and later by his wife Elizabeth from 1920 to 1964. Dr. Paterson died in 1955 and his wife Elizabeth continued to work till 1964. The basic premise that Dr. Paterson theorized was that 'the bacterium is a concomitant of the pathology and not the cause'.<sup>[9-21]</sup>

Besides the paper presentation at Lyon in 1949, Dr. Paterson wrote a paper on the medicine 'Sycotic Compound' in 1933 and in 1950, he published a 'book on summary of his experiences'.<sup>[9-21]</sup>

**Bowel Nosode M. Morganii & P.Morganii****Table 1: Bio Chemistry of M. Morganii & P.Morganii.**<sup>[9-21]</sup>

Serial Number	Name of the non-lactose fermenting organism	Name of the homoeopathic medicine prepared from the organism	Biochemistry of the homoeopathic medicine	Clinical Applications
1.	Proteus Morganii	Bacillus Morgan (Bach)	Sulphur and Carbon are the two outstanding elements	Congestion, Explosiveness, Post operative diarrhea, Constipation
2.	Enterobacteriosae Morganella Morganni	Bacillus Morgan Gaertner (Paterson)	Sulphur and Carbon are the two outstanding elements	Right sided remedy, Liver & Skin diseases, Irritation, Pissed off

The masses can use the National List of Essential AYUSH Medicines (NLEAM) to know about homoeopathy & its use in their daily lives.<sup>[22]</sup>

**Summing up**

As one can see the medicines are also used for inflammations as congestion is the key note symptom. Besides explosiveness, another mental symptom that the medicines are used for is manifested in depression through extreme irritability. It can be seen that the medicines also act on the glands. The external gland here is the skin where as the internal gland is the liver. Besides the glands, the entire right half of the body or any ailment on the right side of the body is addressed by this medicine.

As the above-mentioned study has indicated, other bacterium should also be studied in the same manner. On that line, homoeopathy has other bowel nosodes also from other bacterium. Those medicines can be put to use also. This means what the study elicited in 2025, homoeopathy is using the medicine on the same line almost a century earlier.

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