LITERATURE REVIEW:

Herbo mineral formulation uses the metals and minerals for chronic disorders in various combinations, dosage forms and at various levels of purities. Hence it is very essential to prepare it in a proper way. Literature review reveals many herbo-mineral formulations available in market which is useful in anemia, diabetes, cancer, liver diseases, skin diseases etc.

Review of literature for present work was done by referring various national and international journals, published articles in various official standard books and referring to various websites on the internet.

Prakash V. B. et al (2010) reported Prak-20 (judicious combination of nineteen herbs and Mandoor Bhasma) is a potent hepato-protective herbo-mineral formulation used in treatment of liver ailments in CCl4 induced toxicity in rats. Prak-20 treated animals had minimum necrotic changes after seven day treatment and further studies are required to understand its mechanism of action.

Lone Azad. Hussain et al (2011) has reported that Unaniherbo-mineral formulation is effective and safe for the treatment of chronic Urticaria (Refractory skin diseases) which often creates a therapeutic challenge. It has produced significant effect on itching, wheals, and erythema without causing any untoward effect or adverse reactions.

Ayaz Sultan et al (2011) has explained the safety and efficacy of herbal coded medicine, ScaNeem (Herbal coded medicine), for the treatment of scabies (Skin diseases), which is very common skin disease found in urban population of Gadap town area or Karachi, Pakistan. The test drug was found to be an economical, safe and effective in treatment of scabies.
Kumar Rajeev et al (2011) has reported the use of herbo-mineral supplement –Addyzoa® (Charak Pharmaceuticals, Mumbai India contains Withania somnifera and Emblica officinalis as its principal constituent) in men with idiopathic oligoasthenoteratospermia (iOATs). The study concluded that treatment is effective in improving the semen quality by increasing the sperm count and sperm motility in men with iOATs after 3 months of therapy.

Vaze Ajit (2012) has described the use of Addyzoa, a herbo-mineral formulation in oligospermia in comparison with Ubiquinone (Coenzyme Q 10). A double-blind, randomized controlled trial was conducted and study concluded that treatment with Addyzoa is effective in improving semen quality by increasing the sperm count and sperm motility. The results are comparable with that of Ubiquinone on semen parameters.

Verma P. R. P. and Prasad (1995) have reported the use of lauhabahsma in anemia. It is better absorbed in GIT and devoid of the usual side effects associated with administration of the allopathic iron preparation.

Pattonder R. K. et al (2010) has reported the standardization and quality control of herbo-mineral drug AgnimanthaBhavitaShilajatu- ABS (contains Agnimantha and Shilajatu) and TrivritYuktaNavakaGuggulu-TYNG (contains Shunthi, Maricha, Pippali, Haritaki, Vibhitaki, Amalaki, Chitrak, Nagarmotha, Vayavidanga, SuddhaGuggulu and Trivrita). Both ABS and TYNG were prepared using authentic raw materials and subjected for physicochemical analysis which provides objective parameters to fix up the standards for quality control of finished drugs.

Pawar R. K. and et al (2011) has reported the physic-chemical standardization and development of HPTLC method for the determination of Plumbagin in KalmeghNavayasaloha. The proposed HPLC method is simple, rapid, accurate, reproducible, selective and economic and can be
used for routine quality control analysis of KalmeghNavayasaloha powder.

**Jayawardhane N. D. N. et al (2012)** has stated herbo-mineral treatment as an adjuvant in the treatment of Hepatocellular carcinoma (HCC) patient. Herbo-mineral formulations (Hemabhraka, TamraSindoora, Vanda Bhasma, Manikyapistietc) are safe, cheap and effective in management of HCC and have developed a new clinical application in treatment of Cancer.

**Sheikh Saba et al (2012)** has reported a novel herbo-mineral formulation Las01 (which contains a number of herbs and different types of inorganic minerals like mercury), to be effective as a potent anticancer drug in the human cell lines, the MCF-7 and Hela cancer cell lines. It is devoid of toxicity both in animals as well as human which is the main drawback of chemotherapeutic agents used in modern system of medicine.

**BadariNath A. V. and MadhusudhanaChetty (2011)** have studied the effect of a herbo-mineral tablet (containing green tea aqueous extract and Sodium selenite) for chemoprevention of lung cancer in tobacco severe adductors. The prepared tablets meet the pharmacopoeia requirements and are more comfortable in use.

**Nanda Ruchika et al (2011)** has found the use of herbo-mineral medicine Rakatchaphar (contains Sarpgantha, Shankpushpi, Jatamansi, JaharMohrakhataiPishti, MotiPishti and Rassindoor) in essential hypertension. It has offered an efficacious and safe combination of natural product available for treatment of hypertension.

**Maji D. and Singh A. K. (1995)** has reported a D-400 herbo-mineral preparation (contains Eugenia jambulana, Pterocarpusmarsupium, Ficusglomerulata, Gymnemasylvestre, Momordicacharantia, Ocimum sanctum and Shilajeet) is effective in treatment of Diabetes mellitus. They have studied the effect of D-400 on blood sugar level, serum cholesterol,
triglycerides, LDL, HDL, blood urea, serum creatinine levels and the effect of long-term diabetic complications. D-400 is shown to have beneficial effects as regards the long-term complication and can serve as an important adjuvant in the treatment of diabetes.

**Chopra Arvind et al (2004)** has tested RA-11 (ARTREX, MENDAR), a standardized multiplant Ayurvedic drug (Withaniasomnifera, Boswelliaserrata, Zingiberofficinale, and Curcumalonga) in treatment of arthritis. It has been reported that RA-11 is effective in the symptomatic treatment of osteoarthritis knees.

**Venkateshwarlu G. (2010)** has studied the effect of herbo-mineral formulation in management of Amavata (Rheumatoid Arthritis, RA). RA is a chronic, progressive and disabling auto-immune disease that causes chronic inflammation of the joints and makes life miserable. The present study has been taken up to see the efficacy of a combination of herbo-mineral drugs like Sunthi, Guggulu and Godanthi bhasma (1:2:1 ratio) on 71 cases of Amavata. The study shows a definite improvement in Amavata and subjectively maximum patients had a feeling of well-being. No side effects were reported during and after the treatment.

**Rajendraprasad M. L. et al (2010)** has reported the standardize process of the preparation of the Loha Bhasma. The purpose of the study was to establish chemical standards like iron content in the bhasma because iron is used extensively in the Ayurvedic literature for the management of various diseases like Pandu, Shotha, Kamala etc. Pharmaceutical and analytical studies were conducted during the process of preparation of Loha bhasma to know the changes in the chemical composition at various stages.

**Prasanna K. T. et al (2010)** has studied the effect of Tamra Bhasma for its antibacterial activity on both gram positive and gram negative
bacteria. Tamra Bhasma is used in various diseases like fever, skin disorders, cholera, conjunctivitis etc for its antipyretic, anti-parasitic and antileprotic properties. For this reason, it has been undertaken to prove its efficacy as an antibacterial agent. The result shows that tamra bhasma is effective against gram positive and gram negative bacteria but exact therapeutic dose detection needs further detailed analysis.

Srinivasulu B. et al (2011) has reported the HPTLC fingerprinting analysis in the standardization of PanchavaktraRas – a herbo-mineral formulation. The results of HPTLC shows the number of components presents in the sample accurately and precisely on the basis of mild variations in Rf values, that can acceptable and indicates the purity of drugs.

Srinivasulu B. et al (2012) has studied the effect of PanchavaktraRas– a herbo-mineral preparation is effective in management of Amavata (RA). A single blind clinical trial was conducted to evaluate the effectiveness of PanchavaktraRas in treatment of Amavata. The result shows that it is highly effective and showing a way out to the individual suffering from this chronic disease.

Das S. K. et al (2012) has reported the anti- microbial activity of Shwasakuthar Rasa – a herbo-mineral formulation. In-vitro test was carried out to determine the lowest concentration of the analyst as antimicrobial agent under defined test conditions and to evaluate the antimicrobial activity by inhibiting visible growth of the bacteria.

J. Savarimuthu M. et al (2011) has studied the antibacterial activity of some herbo-mineral siddha preparations (Parpam, Chendooram, Chunnam). The result shows that herbo-mineral siddha preparations are useful as an alternative medicine in the treatment of enteric bacterial pathogen.
**Pallavi A. et al (2011)** has reported Activit – a herbo mineral formulation for its protective effect against gastric lesions induced by ethanol and pylorus-ligation. The formulation was tested at the doses of 125, 250, 500 and 1000 mg/kg body weight in rats for its effect on various gastric and antioxidant parameters. The result shows that Activit possesses anti-ulcer activity, which can be attributed to its anti-oxidant mechanism of action.

**Ambreen Huma et al (2013)** has reported the standardization parameters for ALG-06 a herbo-mineral formulation used in vitiligo. They have prepared ALG-06 formulation which contains herbs and metals together to devoid hazardous effects of many treatments which was previously used to cure vitiligo.

**Sushil S. P. et al (2012)** has studied the wound healing activity of topical application form based on herbo-mineral formulation. They have used plant (Mimusopselengi bark) in combination with Yashad Bhasma in excision, incision and estimation of biochemical marker model.

**Shagufta Parveen et al (2009)** has stated a controlled, randomized single blind clinical trial of Unaniherbo-mineral cream to evaluate its optical effects on Acne vulgaris. The test drug has been proved effective in the treatment of acne vulgaris in the test group in comparison to the control group.

**Ragamala K. C. et al (2010)** has studied the effect of DhatriLoha in the management of Iron deficiency anemia. It was given in a dose of 250 mg twice daily for a period of 60 days and the result shows statically highly significant response in hemoglobin concentration in patients of anemia.

**Subhash C. B. and K. R. C. Reddy (2011)** have made an attempt to find out the best quality of lauha bhasma by preparing various samples of lauha bhasma from different materials. GMP and SOP for bhasma
preparation have become mandatory for the standardization and quality control of bhasma.

Rathinamala R et al (2010) has reported the antiulcer activity of MaankombuParpam (Sirungi Bhasma, SB) by using pyloric ligation method in Wister albino rats. Ulcer is the one of the major disease found in all the socio economic class and occurs mainly due to hyper secretion of HCl, pepsin, infection of H. Pylori and also caused by stress and anxiety. SB has significantly decreased free-acidity, total acidity, ulcer index and gastric volume and increased the pH in pylorus ligated model.

Bafna P. A. and Balaraman R (2004) studied anti-ulcer and antioxidant activity of Normacid – a herbo mineral formulation on gastric secretion and gastric ulcers in pylorus ligation and on ethanol induced gastric mucosal injury in rats. Antiulcer activity of Normacid may be due to the modulation of defensive factors by improvement in gastric cytoprotection and partly due to antioxidant property.

Bafna P. A. and Balaraman R (2005) have studied the anti-ulcer and anti-oxidant activity of pepticare – a herbo mineral formulation in rats. Effect of various doses of pepticare was studied on gastric secretion and gastric ulcers in pylorus ligation and on ethanol induced gastric mucosal injury in rats. Pepticare has significantly reduced ulcer index and increases the pH of gastric fluid.

Bafna P. A. and Balaraman R (2006) have reported anti-oxidant activity of pepticare – a herbo-mineral formulation on isoproterenol induced myocardial infarction and cisplatin induced renal damage. The result shows that pepticare protects heart and kidney from damage caused by isoproterenol and cisplatin respectively.

A. M. Saleem et al (2006) has investigated Karpurashilajit bhasma – a herbo mineral formulation used as a diuretic drug, chemically and
pharmacologically. Content of iron and nitrogen were determined by volumetric analysis and content of calcium, magnesium and aluminum by inductively coupled plasma atomic emission spectrometry. The results of this study could be used as a model data in the standardization of Karpurashilajit bhasma.

**Mitra S. K. et al (2001)** has evaluated OST-6 (OsteoCare), a herbo mineral formulation, for its inhibitory effect on the progress of bone loss induced by ovariectomy in rats. OST-6 was given in a dose of 250 and 500 mg/kg body weight orally for 90 days and the results indicate the usefulness of OST-6 in the management of osteoporosis in a natural way through herbal resources.

**Neelesh Khandelwal et al (2011)** has reported the use of herbal and herbo-mineral formulation in prevention and management of Diabetes Mellitus which is a common and very prevalent disease affecting about 25% of world population. With the use of PathyakaraAahara and Vihara accomplished with yoga and Naturopathic procedures, it is possible to prevent type II diabetes.

**Senthil K. C. et al (2012)** has studied the physic-chemical, acute oral toxicity of heavy metals by using Albino Wister rats for Rasachendooram – herbo mineral Siddha medicines. The result shows that acute and sub-acute toxicity studies with no harmful material and the marketed formulation complies with the standards of Ayurvedic pharmacopeia.

**Suresh Janadri et al (2011)** has reported the effect of nanosizing on bio-eficacy of ShwaskutharRasa – a herbo mineral formulation for Asthma and allergy. Shwaskuthar Rasa was nanozised by planetary micromill and is particle size was characterized by dynamic light scattering method. Antiasthma and anti-allergic activity of Shwaskuthar Rasa was evaluated in albino rats by clonidine induced mast cell degranulation and catalepsy.
Pal K. N. C. (2003) has reported the effect of a herbo mineral compound – Tribangshila (Containing TribangBhsma, Gudmaar, Neem, Jamun, Shilajit and Mamejawa) at the dose of 3 tablets twice daily with water, for a period of 8 weeks was tried in 20 diabetes patients. At the end of treatment symptomatic improvement was observed in all cases.

Prasanna Kumar et al (2003) has carried out the clinical trials of Glycem – a herbo mineral formulation on 29 patients of type II diabetes at a dose of 2 capsules three times daily for 2-3 months. Results showed that Glycem was effective in significant reduction of both fasting and postprandial plasma glucose and glucosylated hemoglobin level.

Dr. Shri Kant M. S. et al (2002) has studied the effect of Diabecon (D-400), a herbo mineral formulation in patients with diabetic retinopathy. It was given in a dose of 2 tablets thrice daily for a period of 3 months for 30 patients. The result indicates that diabecon is a safe drug to prevent complications such as retinopathy in diabetic patients.

Kruti Pandya et al (2011) has reported the standardization method for anit-diabetic tablet – Glucova Active, a herbo mineral formulation. The formulation has a very good effect on Diabetes and the protocol included different parameters for authentification of raw material as well as finished product.

Joshi Uttara and Mhasakar Vandana (2012) have reported the standardization and evaluation of safety of a herbo mineral formulation - Articulin forte tablet in rheumatoid arthritis. Tablet was evaluated for heavy metal contents too. The result is significant and no harmful material is present.
**Prakash B. R. (2002)** has conducted a six week study to examine the effect of a herbo mineral antacid on symptoms of non-ulcer dyspepsia. An herbal antacid, Himcocid, was given at a dose of 2 teaspoonfuls, thrice daily for 4 weeks. The result indicates the decrease in symptoms of non-ulcer dyspepsia and no untoward adverse reaction was seen in any of the patients.

**IIaTanna et al (2011)**, has reported the analytical standards for MehamudgaraVati (MMV), a herbo mineral compound used in treatment of Prameha, Mutraghata, Mutrakrichchca, Ashmari and Styaulya. Analytical profile of MMV deals with weight variation, hardness, and pH and disintegration time, loss on drying, acid insoluble ash, water soluble extract and methanol soluble extract with determination of iron content in the form of Fe2O3 in MMV as well as in Lauha bhasma. The result shows that iron content was reduced in the formulation as compare to that in lauha bhasma.