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# BALRASAYANA: GOLDEN SCOPE IN BOOSTING CHILD HEALTH

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## ABSTRACT

In this modern era, there is a big list of the infectious diseases. Despite mega immunization programs, disease disabilities and death continue to stalk the child population. Strong body and mind can disallow the infection to produce disease, so acquisition of good strength become one's prime health objective. This is a key principle of ayurvedic approach to infectious as well as non- infectious disease and this can be achieved by *Balrasayana*. *Rasayana* therapy is one of the best part of preventive medicine in *Ayurveda*. Experimental studies done on various *rasayana* drugs prove that they have immune stimulant, antioxidant, hepato-protective, Nephro -protective and anti-stress properties. *Rasayana* therapy which is given to the children and are known to promote health by preventing them from various infections are called as *Balrasayana*. They have excellent effect on child's immunity along with nutritive value and are specially prepared to protect the child from diseases and promote the body to achieve proper growth and development. Here an effort is made to enlighten the role of few herbs which boost child health by preventing them from getting ill repeatedly.

**KEYWORDS:** *Balrasayana*, immunity, growth and development, intelligence, vaccination.

## I) INTRODUCTION

Childhood is a critical period of human being. Since this age group is foundation stone, understanding regarding child's health is very essential. Nutritional inadequacies is great obstacle in development of growing child. In 2015 an estimated 5.9 million children died before their fifth birthday due to pneumonia, diarrhoea, malaria mainly.[1] Measles and tetanus still kill more than 1 million children under 5 each year.[2] Therefore, a vaccinated child may suffer from recurrent illnesses that ultimately affects growth of developing child.

**What does vaccination do**- Vaccines are like training course for the immune system. They prepare the body to fight disease without exposing it to disease symptoms. When foreign invaders such as bacteria or viruses enter the body, immune cells called lymphocytes respond by producing antibodies, which are protein molecules.

**Need of *Balrasayana***- Role of immunization is limited to the particular disease, for which child is vaccinated. It has no role on child's health or basic immunity. If by any mean we can enhance body's immune power, it will provide basic strength to child, so that they can remain active/ healthy even in diseased condition.

*Rasayana* therapy is one of the best part of preventive medicine in Ayurveda. They act as both brain and body tonic, maintain growth and development by a proper nutrition. It is an effective tool to synthesize the excellent qualities of *dhatus*. They build barrier against infection. According to various *Acharya's*, *rasayana* provides strength, immunity, ojus, vitality, will power, memory and intelligence.[3]

### Role of *Balrasayana*

In the terms of *Balrasayana*, we can say that it has not been mentioned as such in Ayurvedic classics. But several herbs and compounds (*yog*) are mentioned particularly for pediatric age group which possess *rasayana* like properties like *Lehankarma*, *Swarnaprashan*, *Prakaradi* yog. They are known to have excellent effect on child's immunity along with nutritive value.

## II) MATERIAL AND METHOD

The literature was collected from different Ayurvedic texts, Modern texts, reputed journals, internet and retrospective studies.

**III) Health promoting drugs in children mentioned by *acharya kashyap***

The drugs mentioned by *Acharya Kashyap* in *Lehadhyay* are *Manjistha, triphala, brahmi, chitrak, Bala, atibala*.[4] These drugs are claimed to enhance *medha (*intelligence), *Ayu* (growth and development*)* and *Bala* (immunity and strength). The various researches done on these drugs which help in prevention of diseases and enhance immunity, growth, development, intelligence and maintain proper health are as follows-

**1. *Amalaki* (Emblica officinalis)**

It has **antioxidant** properties as aqueous extract was found to be a potent inhibitor of lipid peroxidase formation and scavenger of $OH^-$ & NO radicals in vitro.[5] The fruit extract of E. officinalis has been reported to have strong **immunomodulatory properties** which was evaluated using chromium (VI) as an immunosuppressive agent. It also inhibited apoptosis and DNA fragmentation and relieved the immunosuppressive effects of Cr on lymphocyte proliferation and even restored the IL-2 and γ-IFN production considerably.[6] It is **gastro- protective** in nature as ethanolic extract shows this effect in different experimental models in rats.[7] It also possess **hepato-protective** properties as its extract reduces elevated levels of collagen hydroxyproline significantly which was studied using $CCl_4$ induced liver injury model in rats.[8] It induces genotypic adaptation which appeared to depend on the ability of target tissues to synthesize $PG_S$ proving its **adaptogenic** properties,[9] thereby promoting homeostasis.

***Haritaki* (Terminalia chebula)**

All tested extracts shows **antioxidant** activity at different magnitude of potency.[10] T. chebula fruits studied and confirmed the **immunomodulatory activity** evidenced by increase in the concentration of antioxidant enzymes, T and B cells, melatonin concentration in the pineal gland, cytokines levels.[11] Gallic acid and Chebulagic acid were isolated from its extract as active principles that blocked the cytotoxic T- cell mediated cytotoxicity.[12] Aqueous extract can serve as an alternative to prokinetic drugs available today.[13] It decreases serum levels of damage causing enzymes and shows recovery of hepatocytes shapes[14] showing **beneficial effects on GIT and Biliary system**.

***Vibhitaki* (Terminalia bellerica)**

The crude extract of the fruit of Terminalia bellerica have **antioxidant properties** since it contains enzymatic and non – enzymatic antioxidants. It was proved by in vitro assessment of ethanolic fractions of this plant to scavenge highly reactive hydroxyl radicals. It showed significant antioxidant activity by scavenging free radicals and hydroxyl radicals which are known to cause cellular damage.[15] T. bellerica extract affect **T cell proliferation** mainly through the same mechanism as polyhydroxyalkanoates (eliciting cell mediated immunity). Extract enhances T-cell mediated immunity more than B-cell mediated mediated immunity.[16] Extract shows dose dependent recovery in biochemical parameters in SGOT, SGPT and lipid peroxidase against $CCl_4$ induced intoxication showing **hepato- protective** in nature.[17]

**2. *Atibala* (Abutilon indicum)**

The roots and aerial parts were extracted and evaluated for the total antioxidant capacity (TAC) employing ferric reducing anti-oxidant power (FRAP). From the report, it was concluded that plant is a **potent source of natural antioxidant.**[18]

Essential oil from plant augments antibody in animals showing immunological value.[19] Abutilon indicum was evaluated experimentally for its **immunostimulant** property. The parameters included i) humoral antibody enhancing response of drug against killed salmonella typhi "O" antigen in rabbits, ii) protective effect of drugs against Staphylococcus aureus (Coagulase positive) challenge in rabbits iii) direct antibacterial activity of drugs against Staphylococcus aureus on nutrient agar plate and iv) immunological changes in experimental animals following drug administration. Experimental studies in rabbits showed that the entire drug treated groups of animals showed a higher level of anti-salmonella typhi "O" titers. The protective effect of A. indicum against virulent staphylococcus aureus challenge in the rabbits showed highly significant survival period ($p<0.01$). The haematological values for total and differential leucocytes count and Haemoglobin percent did not shown any particular change. However a significant decrease in ESR levels ($p<0.05$) following Staphylococcus aureus injection was noted in A. indicum treated animals. Histopathological studies of animals challenged with virulent staphylococcus aureus showed marked protection of tissue damage.[20]

Aqueous extract exhibit significantly possess **hepato-protective** effect in $CCl_4$ & PCM induced change in biochemical parameters like SGOT, SGPT & ALKP assessed by enzymatic examination.[21]

***The use of A. indicum as an adjuvant in immunization programme has been advocated due to its immunomodulatory properties.[22]**

**3. *Brahmi* (Bacopa monnieri)**

Alcoholic extract of the plant and chlorpromazine when compared, it was found that plant alcoholic extract greater improved the performance of rats in motor learning.[23] A standardized bacosides-rich extract of B. monnieri reversed the cognitive deficits induced by intra-cerebroventricularly administered colchicines.[24] Its **cognition facilitating activity** is attributed to the saponins, Bacoside A and Bacoside B, which are effective in much lower doses in various model studies, including tests for conditioned taste aversion and conditioned shock avoidance response.[25] In vitro studies have demonstrated its protective and curative effect on gastric ulcers.[26]

**4. Manjistha ( Rubia cordifolia)**

Alcoholic extract of root of Rubia cordifolia and its constituent rubiadin has **antioxidant** property.[27] Hydroxyanthraquinones were the predominant antioxidant phenolic constituents in the root of R. cordifolia.[28] R. cordifolia shows **neuro-protection** as it is good anti-oxidant and strong free radical scavenging properties.[29] Aqueous extract inhibited the lipoxygenase enzyme pathway which catalyses the production of various **anti- inflammatory** mediators such as leucotrienes.[30] It is **hepato-protective** in nature as it is effective against acute and chronic hepatitis in humans.[31] Methanolic extract shows **gastro-protective** property.[32]

**5. Bala (Sida cordifolia)**

All extracts of S. cordifolia have effective free-radical scavenging activity. Only the root extract exhibited superoxide-scavenging activity and inhibited lipid peroxidation in rat liver homogenate. All these **antioxidant properties** were concentration dependent. The highest antioxidant activity was observed in the root extract.[33] Fumaric acid isolated was reported to have **hepato-protective activity.[34]**

**6. *Chitraka* (Plumbago zeylanicum)**

Administration of ethanolic extract (100-200kg) for 6 weeks in streptozotocin diabetic rats increase hepatic hexokinase activity and decrease hepatic G-6-$PO_4$,ALP,S. acid phosphatase showing **hepato-protective** properties.[35]

## IV) DISCUSSION

In this modern era, due to polluted air, food and environment the children suffered from many viral and bacterial diseases or recurrent infections hampering physical and mental growth of the child. Ayurveda has numerous drugs which boost memory, intelligence and immunity in child. Good health in childhood state gives strong foundation to the future building of life.

*Amalaki, Vibhitaki, Haritaki, Atibala, Bala* possess antioxidant property which improves brain function, encourage focus and clarity. Anti-oxidants play an important role in protecting the enzymes, fats and vitamins in the body. These natural substances help to delay or prevent certain types of damage to the cell. They counteract the harmful effect of free radicals which damage the neurons. If free radicals get out of control, cells are damaged faster than they are repaired. *Manjistha* is a well-known rasayana (rejuvenator). It decreases the neurodegeneration and helps in memory retention activity. It helps in reestablishment of tissues. A balanced combination of *Soma* (water) and *Agni* (fire) found in *Manjistha*. Agni allows the herbs to penetrate into the cellular level of tissues and soma helps to soak up the toxins and neutralize them. *Brahmi* has cognition and memory facilitating effect. They produced changes in the hippocampus, cerebral cortex and hypothalamus regions of the brain indicating positive implications for improved neurotransmission and repair of damaged neurons via enhanced regeneration of nerve synapses.

*Amalaki* has vitamin C that possess immunomodulatory activity. *Haritaki* decreases inflammation in body. It possess immunomodulatory properties that increase $WBC_S$ production. *Vibhitaki* helps fight bacteria, yeasts, moulds as it is rich in gallic acid. It enhances the ability to engulf the bacteria after killing them. *Atibala* stimulates neutrophil function due to their free radical scavenger activity and enhance especially the macrophage activation. Therefore, *triphala* and *atibala* have potential immunostimulants/ immunosuppressant and hence has immunomodulation activity.

*Amalaki* has cooling effect and supports normal function of liver. It assists natural internal cleansing and rejuvenates the tissues, supports healthy digestion and absorption, natural antioxidant (containing 20 times more vitamin C than orange), gentle bowel tonic, being helpful in digestion and appropriate bowel movements. It balances *pitta*. *Haritaki* has scraping effect. Therefore, it remove toxins and help maintains health. It balances *vata*. It stimulates the functioning of digestive system and sensory organs. *Vibhitaki* helps to pacify all three dosha especially used for pacification of *Kapha* dosha. It is very supportive for three essential tissues of body – *rasa dhatu* (plasma)/ *mamsa dhatu* (muscle) and *asthi dhatu* (bone). It has astringent properties. *Atibala* has aphrodisiac and body strengthening properties. The plant is loaded with antimicrobial nutrients that can help cure liver problems, blood diseases, lung ailments, bronchitis tuberculosis and can be used to regulate internal secretions. *Chitrak* is one of the most effective digestive herbs of ayurvedic medical science. It helps remove natural toxins from the intestines and thereby helps boost metabolism. It assist proper functioning of liver and easy digestion of sugar and fats. *Chitraka* revitalizes the body by providing proper absorption of nutrients, antimicrobial, anti-inflammatory. *Bala* means strength. It increases strength of bones, joints, muscles. It helps in digestion and increases the moistness of tissues. It acts as body coolant. It has anti-inflammatory properties and controls motility of large intestine. It aids in absorption of water and nutrients from intestine. It has strong diuretic properties. *Brahmi* helps in maintaining balanced emotional state, enhance cognitive ability, reduce stress levels, boost the immune system, improves respiratory health, gives healthy skin, alleviates digestive related problems, protects from toxicity. *Manjistha* helps regulate cholesterol levels, help regulate and maintain excellent blood levels. It helps regulate blood flow and can help those dealing with blood clotting tissues. It is also known to help the blood get rid of toxins and purify it. It balances lymph system by flushing out toxins. It is all due to *raktaprasadan* properties.

## V) CONCLUSION

Children are the building blocks of the society. Infection rates are rising day by day. Every textbook of Pediatrics

prescribed Immunization Programme. But still there is a big confusion in giving vaccines to children who are immunocompromised, suffering from diarrhea, fever, etc. B.C.G. vaccine if given not ensured that the children will not suffered from Tuberculosis if get exposure to Koch's infection. All the above herbs synergistically work as potent health boost up. Vaccine scope is limited to infections only but Balrasayana prevents the child from infectious as well as non- infectious diseases along with malnourishment. Vaccines has known and unknown side effects but Balrasayana has no such side effects. Therefore, these drugs have potential source of being used as *Balrasayana* for maintaining proper health of child as well as support to fulfil nutritional inadequacies in child. Hence, Balrasayana offers a new horizon for boosting child immunity along with maintaining good health and enhancing intelligence. Balrasayana can be used as an adjuvant to vaccination in order to boost the immune system in children.

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