

3.5.1: Number of functional MoUs/linkages

LINKAGE

Yashwantrao Chavan Warana Mahavidyalaya,
Warananagar, Dist.-Kolhapur



And

Shripatrao Chougule Arts and Science College, Malwadi-
Kotoli, Tal-Panhala, Dist.- Kolhapur.



Linkage is signed on 13th August 2018 between

1.Yashwantrao Chavan Warana Mahavidyalaya, Warananagar -**First Party.**

and

2.Department of Botany, - Shripatrao Chougule Arts and Science College,
Malwadi- Kotoli, Tal.-Panhala, Dist.Kolhapur.

Pin-416230.

-Second Party.

It is agreed by the First party and Second party to impart student and faculty exchange, sharing of human resources and infrastructure, study tours, educational content development, book editing, trainings and workshops, research publications, research to the students and to organize conference/seminars jointly. Both the parties have discussed in detail the areas of co-operation and mutually agreed to make the linkage. Now it has been agreed by and between both the parties with the following terms and conditions.

Terms and Conditions:

1.Both the parties will extend their facilities to each other in the areas of student and faculty exchange, sharing of human resources and infrastructure, study tours, educational content development, book editing, trainings and workshops, research publications, research to the students and to organize conference/seminars jointly.

- 2.No rental charges or any other incidental charges, unless mentioned, shall be paid by both the parties for using the infrastructure facilities of each other.
- 3.The books written, books edited, educational and research contents developed jointly, etc. will be published as a joint publication.
- 4.The IPR and patents produced out of the linkage will have equal rights of both the parties mentioned above.
- 5.The linkage will be valid for a period of five years starting from the date of signing this agreement and may be renewed for a further period of five years through mutual consent of parties.
- 6.This linkage may be terminated by either side by giving three months' notice to that effect in writing.

In witness whereof, the parties here have set these hands on the 13th August 2018.

| Party | First Party | Second Party |
|----------------------|---|--|
| Institute | Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist.-Kolhapur | Shripatrao Chougule Arts and Science College, Malwadi- Kotoli, Tal.-Pahnhal, Dist.Kolhapur. |
| Signature |  |  |
| Name & Designation | Dr. S. J. Lade Head, Department of Physics | Miss. Nale R. P. Head, Department of Botany. |
| Signature |  |  |
| Name and designation | Prof. Dr. P. S. Chikurdekar I/C Principal | Dr. Smt. Vandana P. Patil Principal |
| Stamp | PRINCIPAL Yashwantrao Chavan Warana Mahavidyalaya Warananagar, Dist. Kolhapur | I/C. Principal Shripatrao Chougule Arts And Science College, Malwadi-Kotoli, Tal Pahnhal |
| Seal |  |  |

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**Study of Dye Yielding Potential of Plant Growing in Kotoli Region, Dist- Kolhapur
and Their Application Textile And Food Industries**

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Abstract:

Dyes are one of the most important uses of the plants. Interest in the use of natural dyes has been growing rapidly due to toxic, pollution creating and allergic reactions associated with synthetic dyes. Herbal dyes are biodegradable, non-toxic, soft and safe colours. They can be used in food, medicine, perfume, leather and textile industries. The most common herbal parts used for extraction of dyes are seeds, flowers, leaves, barks, stems and roots. The present study deals with assessment of dye yielding potential of some plants growing in kotoli – district- Kolhapur region so as to assess the applicability of them as alternate source of colouring agent. Natural dyes extracted from five species were further tested on cotton fabrics for colour, shade and stability. The studies showed that five common plants namely, shendary (seeds), kath, chandan(Bark), Haladi (rhizome) and shevari (leaves) was used for the studies. Test of these dyes exhibited attractive colour patterns on cotton fabric and remained bright, stable up to 5 washes. The herbal dyes added attractive colours as well as taste to the idlies, puries and rice prepared with them.

1)Introduction:-

Dyes are one of the essential needs of modern industries. Especially, food industries, dairy products, medicines, toys and textile industry needs safe, biodegradable, non-toxic and non-allergic dyes. Advancement in synthetic dyes replaced the traditional herbal dyes as they had advantage of standardization and can be synthesized the colour with same shade, same concentration with long shelf life. However, synthetic dyes are creating serious problems of environment pollution and health issues. Studies of National Institute of Mental Health and Neurosciences found that metanil yellow used in jalebies is neurotoxic to rats. Over use of tartrazine used in jams and jellies can cause irritability in children. Therefore, there is a urgent need to search for safe, and eco-friendly dyes.

In India, there are more than 450 plants that can yield dyes [9]. The various colour of plant parts are due to combination of pigments like chlorophylls, carotenes, xanthophylls, anthocyanin etc. Varigated leaves, multi-coloured attractive flowers, coloured stems and rhizomes are potential sources of natural dyes. Natural dyes are easily available with low cost. They are biodegradable, eco-friendly and without any side effects. Some of the natural colours are not only eco-safe, but has added value for its medicinal effects on skin and are more than skin friendly [1]. The lichen metabolites also have antimicrobial and insecticidal properties, hence lichen dyes have an inherent quality of insect resistance thus gives more life to the dyed fibres [8]. Turmeric is the brightest of naturally occurring yellow dye and a powerful antiseptic which revitalizes the skin [5]. Annatto is one of the foremost economically important natural dye yielding plant mainly used to colour dairy products [9]. The annatto dye is cheap, soothing, long lasting and has anti-microbial property [6]. There is need for proper knowledge, documentation and assessment of dye- yielding plants as well as the dyeing techniques so as to increase the use of natural dyes [4].

The Process of imparting color to a substrate using some colored materials is known as dyeing. The colored substance are known as dyes. The coloring materials that occur in colored organs of plants are manufactured by plant itself. Those are in the form of pigments having diverse chemical & functional nature. The most important colored pigments chlorophyll, carotenoid. The various colors in flowers are due to mixture of these two type of pigment.

In all these pigments only stable pigments can be extracted & colored pigments are useful as dyes. These natural dyes obtained from plants are used for several purpose mostly industries. Dakery,