

## CONTACTANTS IN 'KUM-KUM' DERMATITIS

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Twenty patients having contact dermatitis on the forehead due to *Kum-Kum* were patch tested with the commercially available *Kum-Kum* used by the patient as such, and also the extended European standard series of allergens, as well as brilliant lake red R, sudan I, aminoazobenzene and canaga oil since analysis of the *Kum-Kum* by thin-layer chromatography showed presence of these constituents. Patch tests were positive in all the patients with the commercial *Kum-Kum* and brilliant lake red R, sudan I; aminoazobenzene and canaga oil, but not with the extended European standard series of allergens.

**Key Words:** Contact dermatitis, Patch tests, Thin layer chromatography

### Introduction

*Kum-Kum* (also called 'sindhoor' or 'tilak') are coloured cosmetics applied to the forehead by Indian women for socio-religious purposes. *Kum-Kum* is held in high esteem by the South Indians, especially the married women who apply it on their forehead as a sign of their marital status and these cosmetics are sold as powders or liquids.

In olden days *Kum-Kum* was prepared at home by treating powdered turmeric with alum, but with the advent of synthetic chemicals the household *Kum-Kum* has been replaced by a variety of dyes.<sup>1</sup> To date, knowledge of the constituents of *Kum-Kum* for patch testing is very limited.<sup>2</sup> The purpose of this work was to study the frequent sensitizers in various types of coloured *Kum-Kum* commonly used in India.

### Materials and Methods

Twenty consecutive cases of *Kum-Kum* dermatitis attending the Contact and Allergy Clinic of Dermatology and Venereology outpatient department were studied. Detailed history regarding duration of *Kum-Kum* application, dermatitis and other sites affected

were recorded.

Among the cases of *Kum-Kum* dermatitis duration of *Kum-Kum* application varied from 1 month to 25 years. Nine patients were found to be using powder *Kum-Kum*, 6 using liquid *Kum-Kum*, 5 using both powder and liquid *Kum-Kum*.

*Kum-Kum* used by the patient as such and a refill pack of *Kum-Kum* available in the market were analysed by thin layer chromatography (TLC) and it was found to contain brilliant lake red R, sudan I, aminoazobenzene and canaga oil.

Patch testing in 20 patients, aged between 25 to 45 years, was done on the back with *Kum-Kum* used by the patient and extended European standard series of allergens obtained from Chemotechnique Diagnostics, AB Sweden. In all these cases, brilliant lake red R, sudan I, aminoazobenzene and canaga oil were incorporated in the patch test tray.

The standard patch testing technique with indigenous Finn chambers was used.<sup>3</sup> Reactions were scored as recommended by International Contact Dermatitis Research Group.

### Results

Positive patch test reactions of various

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intensity were obtained to patient's *Kum-Kum* as such, brilliant lake red R, sudan I and aminoazobenzene in all the 20 cases (Table I) and none of the patients showed a positive patch test reaction to extended European standard series of allergens.

**Table I.** The severity of patch test reaction with different antigens

Sl. no.	Antigens	Number of tests giving a positive reaction				
		(-)	(±)	(+)	(++)	(+++)
1.	Control	-	-	-	-	-
2.	Patients's Kum-Kum as such	-	-	2	8	10
3.	Brilliant lake red R	-	-	4	5	11
4.	Sudan I	-	1	3	12	4
5.	Aminoazobenzene	-	-	1	16	3
6.	Canaga oil	-	9	-	-	11

## Discussion

Contact dermatitis to *Kum-Kum* is a common cosmetic problem. It presents as erythema, papular and vesicular lesions at the site of *Kum-Kum* on forehead, near the hair margin, and on the surrounding skin where it may trickle with sweat.<sup>4</sup> the *Kum-Kum* available in the market presumably contains many agents which can cause contact dermatitis.<sup>5</sup>

Most *Kum-Kum* are made in India and the constituents are unknown. We were unable to obtain from the manufactures the constituents of *Kum-Kum* for patch testing. The present study implicates brilliant lake red R, sudan I, aminoazobenzene and canaga oil in the *Kum-Kum* material for production of the dermatitis.

Only some women develop dermatitis, though the *Kum-Kum* is used by the majority. This could be explained by either individual susceptibility or constant use for a prolonged period. Only red *Kum-Kum* appeared to sensitize and cause contact dermatitis. The reason might be that red *Kum-Kum* are more commonly used as compared with other *Kum-Kums* and that probably only red *Kum-Kums* contain the high percentage of sensitizers that cause allergic contact dermatitis.

Restriction of the use of brilliant lake red R, sudan I, aminoazobenzene and canaga oil in the manufacture of *Kum-Kum* is recommended as these chemicals are commonly used in the manufacture of *Kum-Kum* in India, and we also recommend to incorporate these in the extended European standard series of allergens or tested separately by the Indian Dermatologist along with the extended European series of allergens.

## References

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