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Ray skin - an emerging unconventional source of leather

Due to the ever-increasing demand for leather products, alternative sources are constantly being explored. Of late, a new trend in using fish skin is gaining momentum, which may become an important event in the development of leather industry. Fish leather has a good tensile strength as any other leather. The process is highly cost-effective, as the raw material generated is generally discarded at fish markets. Nowadays skin of koth and ghol are also being used as an alternative source of leather. The skin of koth is preferred over that of other fishes due to its small scales, which gives the finished leather product a

better look. Usually medium-sized fishes are used for this purpose.

Rays are gaining importance, not only because of their significance as a food item, but also because of their skin, which seems to be highly durable. There are about 28 species of marine rays occurring in India.

At New Ferry Wharf, the landings of rays were observed throughout the year with the period of abundance during February-April and November-December. The annual landings ranged between 205.7 t (2002) to 409.9 t (2004). *Himantura alcockii* contributes maximum to the fishery with 49

% followed by *Himantura bleekeri* (13 %), *Himantura gerrardi* (5 %) and *Himantura uarnak* (3 %) and other miscellaneous rays formed about 30 % of the total ray landings. Professional peelers are involved in removing the skin of the rays, which is done at the landing centre itself. Extreme care is taken while separating the skin from the flesh to avoid damage and wastage of skin to the maximum extent possible. The peeled skin is collected and arranged in stacks and taken to the processing unit immediately. The flesh is cut in to pieces for easy transportation and the bones are sold for a good price.

Salt is applied on the collected skins and kept for a day or two, after which it is washed gently. Care is taken to retain the natural pattern and designs. The skin is then further processed. Earlier attempts in tanning the ray leather failed because the end product was stiff and fragile. This has led to the development of new processes for the tanning of ray leather. Ray leather has an excellent appearance and durability because the microscopic fibers of ray's skin are woven together unlike other animal hides. Moreover, the tensile strength of the ray skin is two and a half times more than that of other animal hides. The finished product is then stocked for marketing.

The price structure of skin of different species of rays ranges according to the size of disc length. The price is provided in the following table.

Species	Size/Disc length (cm)	Price per piece (Rs.)
<i>H. alcockii</i>	38-60	60
	60-80	140
	80 and above	160
<i>H. bleekeri</i>	38-60	70
	60-80	150
	80 and above	175
<i>H. uarnak</i>	38-60	70
	60-80	150
	80 and above	175
<i>H. gerrardi</i>	45-65	75
	65-85	160

The ray leather can be used for manufacturing various products such as chappals, wallets, belts, shoes, jackets and ladies hand bag. The most expensive skin of rays belongs to the species *Dasyatis uarnak* due to its attractive colour and intricate patterns. Although at present the exact quantity of ray skin being exported from India is not known, it is presumed that in the near future this commodity will assume more importance. Nepal is the main market for the skin of rays followed by America, Germany and France.

Fish skin now proves to be a cheaper alternative for the much more expensive animal hide. The production cost of conventional leather varies from Rs. 70 to Rs. 90 per square feet, but for fish skin it would be less than Rs. 40 per square feet.

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