

PRESENCE OF OXIDATION IN SEED'S POLYSACCHARIDE OF *CASSIA PUMILA* LAM.

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The seeds of *Cassia pumila* Lam. (Caesalpinaceae) prevalent in Garhwal region of Northern India contain water soluble sugars such as D-galactose & D-mannose in 3:4 molar ratio. Present study deals with periodate oxidation in seed's polysaccharide. Reaction of periodate oxidation was first discovered by Malaprade (1928). Fluery & Lange (1933) have given a better method for more extensive use of periodic acid for oxidation of glycol. The glycol groups undergo cyclic ester formation with oxidation and reaction considered to be dialdehyde type of oxidation (Perlin, 1959). Sarkar (1976) has used the periodate oxidation to determine the structure of polysaccharide.

Polysaccharide (437 mg) was oxidised with water (50 ml), sodium metaperiodate (0.124 M, 100 ml.) and made upto the volume 250 ml. Aliquot (5 ml) was pepetted out at different intervals of time, to determine the amount of periodate consumption and formic acid liberation (Abdel & Smith, 1951).

To the aliquot (5 ml) taken in iodine flask containing borax solution (5 ml), water (50 ml), boric acid (2 gm) was added with KI solution (40%, 2ml). The liberated iodine was titrated against sodium arsenite solution (0.12N) using strach as an indicator. The difference between blank and experiment gives the periodate consumption values. For formic acid liberation, the aliquot (5ml) was taken in a flask containing ethylene glycol (0.5 ml) to destroy the excess of periodate (Fluery & Lange, 1933) and formic acid involved was titrated against sodium hydroxide solution (0.01 N) using methyl red dye as an indicator. This estimation was carried out at different time intervals. The titre values became constant after 45 hrs and corresponded to 1.30 moles of periodate and 0.20 moles of formic acid per mole of anhydrohexose units.

C. pumila seed's polysaccharide was oxidised with sodium metaperiodate by usual manner. It yielded 0.20 moles of formic acid per equivalent of polysaccharide with concomitant consumption of 1.30 moles of periodate for each anhydrohexose units of the polymer after 45 hrs. The presence of (1 → 6) - α - type and (1 → 4) - β - type linkages are also confirmed by the periodate oxidation results.

References

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Musk Trade

One of the most endangered animals, musk deer, is being poached on large scale in the central Himalayas. Experts estimate illegal international trade in wildlife at five billion dollars a year, second only to narcotics. One part of it consists of musk, obtained from a pod or gland of a small deer living in high mountains. Ten years ago musk deer herds were found all over the central Himalayas. Large scale poaching during the decade has drastically reduced their numbers. Now these are found only in the Chamoli and Uttarkashi districts of Garhwal, which have become the source of some of this illegal trade.

Only males have the musk gland, one of which contains between 40 - 50 grams of a semi-liquid substance, which turns into crystals when the animal is killed, providing a subtle scent. These crystals are being used in expensive medicine. Annual trade in musk is estimated at 275 kgs. Its price is \$ 1,00,000 a kg. Dr M.J.B. Green, a British wildlife biologist in Oxford and an authority on this vanishing species, estimates that between 5,000 and 16,000 musk deer are killed every year by poachers in the Himalayan region for this trade. This has resulted in the extinction of 30 per cent of the musk deer population. To save it, it has been included in Schedule I of the most endangered animals by the International Union for the Conservation of Nature (IUCN).

Musk, it is said, is still being used in perfumes produced by Fragonald Laboratories of Monte Carlo and by the famous French makers of Channel 5 and Madam Rochas. It is also said to be used in Japan in medicines for asthma, epilepsy and typhoid.

The route of this illegal trade is said to be from Joshimath to Dharchula in Pithoragarh district, from there across a wooden bridge over the Kali river into the sister town of the same name in Nepal, then on to Hong Kong for final destinations in France and Japan.

(Harish Chandola)