

CHEMICAL EXAMINATION OF JACK TREE LATEX AND JACK FRUIT GUM

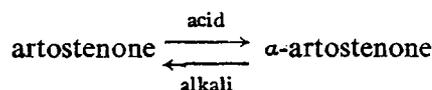
Part III. Ultra-Violet Absorption Spectra of Artostenone and α -Artostenone

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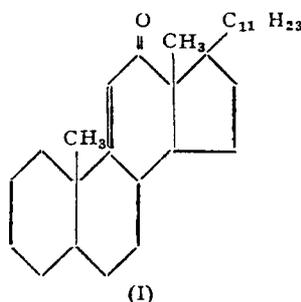
As the result of the earlier work of Nath¹ and of the more recent study of Balakrishna and Seshadri² it has been established that artostenone and α -artostenone are isomers which are capable of interconversion.



The most characteristic difference between the two lies in the fact that the former does not give rise to enol-esters whereas the latter undergoes this change. Another difference which has been pointed out earlier by Nath is with regard to the capacity to condense with benzaldehyde. α -Artostenone gives the benzylidene derivative and therefore has a reactive methylene group whereas artostenone itself does not undergo this condensation and is therefore devoid of the reactive methylene group. Thus the capacities to form enol-esters and to condense with benzaldehyde go together. With a view to understand the relationship more closely, the ultra-violet absorption spectra of these two substances and of α -artostenone-enol-benzoate have now been studied. Because of the low solubility of the substances in alcohol, ether was used as solvent; the time of exposure was three minutes. The results are recorded below:

Substance	Concentration %	Absorption
Artostenone ..	1.5	235-250 $m\mu$
	2.0	235-250 $m\mu$
	2.5	235-250 $m\mu$ and 275-310 $m\mu$
α -Artostenone ..	1.5	235-250 $m\mu$ and 288-290 $m\mu$
	2.0	235-250 $m\mu$ and 285-292 $m\mu$
	2.5	235-250 $m\mu$ and 281-300 $m\mu$
α -Artostenone-enol benzoate	1.5	} Complete absorption upto 300 $m\mu$
	2.0	
	2.5	

It is remarkable that the spectra of the two isomeric ketones resemble closely. Both possess the high intensity absorption in the region of $240 m\mu$ which is considered to be characteristic of the $-C=C-C=O$ group. There is some difference in regard to the low intensity band round about $290 m\mu$. In artostenone this could not be observed with solutions of lower concentrations and at higher concentrations the band is somewhat broader whereas with α -artostenone this could be seen in all the concentrations employed. Thus both the isomers seem to belong to the category of α - β -unsaturated carbonyl compounds. Nath has already reported other experimental results suggesting the presence of this structure in artostenone. It is now clear that even α -artostenone has this grouping. This point is of considerable importance in the consideration of the structure of these compounds. The formula (I) already proposed by Nath for artostenone does not appear to be capable of explaining this isomeric change.



The enol-benzoate of α -artostenone differs markedly from the two ketones in its spectrum. Its total and somewhat strong absorption up to $300 m\mu$ should be attributed to the presence of a benzoyl group and two ethylenic bonds.

REFERENCES

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| 1. Nath | .. <i>Zeit. Physiol. Chem.</i> , 1937, B, 247, 9-22. |
| | .. <i>J.I.C.S.</i> , 1945, 19 ; 1946, 245. |
| 2. Balakrishna and Seshadri | .. <i>Proc. Ind. Acad. Sci.</i> , A, 1947, 26, 46 and 203. |