

ably higher than 2 per cent., the maximum fixed in the Indian Pharmacopœial List. Most of the values range between 3 and 7. A lower limit of 3 and an upper limit of 7 would appear to be more reasonable for Indian oils. The N.N.R.<sup>2</sup> (1944) has also prescribed the limits between 3 and 6.

The unsaponifiable matter taken with the Saponification value and Iodine value, offer an important criterion for the purity of shark liver oil. The B.P.<sup>3</sup> permits  $\leq$  1.5 per cent. in cod liver oil and values between 7 and 13 for halibut liver oil. It was also found that no correlation existed between the vitamin A and unsaponifiable matter of shark liver oil.

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#### EFFECT OF CENTRIFUGAL SPINNING ON THE SYNERESIS OF SODIUM OLEATE GELS IN PINENE

The kinetics of syneresis of sodium oleate gels in pinene is modified by changes in physical conditions and also by the addition of other substances.<sup>1,2</sup> The author has found that it is also modified considerably when these gels are subjected to centrifugal force.

Gels containing different amounts of sodium oleate in 10 c.c. of pinene, prepared in graduated glass test-tubes as described by Prasad and Hattiangdi,<sup>3</sup> were centrifuged at 30° C. for known intervals of time. The amount of the liquid exuded and the volume of the shrunken gel were noted. The percentage ratios of the liquid exuded to the total volume of the gel are given below.

TABLE I  
Effect of centrifugal force (2,000 r.p.m.) on syneresis of sodium oleate gels in pinene

Time (minutes)	Sodium oleate in gm.			
	0.05	0.10	0.15	0.20
0	..	..	..	..
5	55	45	35	26
10	67.5	54	42.5	35
15	72	58	48	38
20	73	62.5	51	40
25	73.5	63.5	52	41
30	73.5	64	52.5	41.5

It is seen from Table I that at a given speed of the centrifuge, the amount of the liquid exuded increases with time and reaches an almost constant value after about half an hour. The facile removal of the syneretic liquid initially indicates that it exists in a free state in the interfibrillary spaces, the remaining liquid which is not exuded being enclosed in a bound state inside the micelles. Further, the amount of the liquid exuded decreases as the soap con-

tent of the gel is increased, indicating thereby that the amount of the bound liquid has increased, due evidently to the increased aggregation of the gel micelles.

The relation between the soap content and the bound liquid was found to be linear. Prasad, Hattiangdi and Wagle<sup>4</sup> find that no gels are formed when the soap content is less than 0.020 gm.; hence, the aforesaid straight line has no real points in the concentration range, 0-0.020 gm.

The effect of the speed of the centrifugal spin is brought out in Table II.

TABLE II  
Effect of variation of centrifugal speed on syneresis of sodium oleate gels in pinene (Concentration of sodium oleate 0.10 gm.)

Time (minutes)	Centrifugal spin (r.p.m.)			
	0	750	1250	2000
10	0.95	2	5.5	54
15	1.3	4.5	13.5	58
25	1.9	7.5	20	63.5

It is seen that with an increase in the centrifugal speed, the amount of the liquid exuded increases, at first slowly and then rapidly. Therefore the indications are that large pressures are necessary for the removal of a major portion of the free liquid which is held by forces of attraction inside the gel system. It is probable that when very large pressures are applied some of the bound liquid could also be removed from the intermicellary spaces and exuded as a synereticum.

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#### ON THE ACTIVE PRINCIPLES ISOLATED FROM THE LEAVES AND THE BARK OF *SKIMMIA LAUREOLA* HOOK.

The leaves of *Skimmia laureola* Hook, the common fodder plant of India, has been examined chemically by various workers,<sup>1,7</sup> and have been found to contain (1) an alkaloid-skimmianine, m.p. 176-177° (1), (2) a furocoumarin—bergapten, m.p. 188-190°, a neutral substance—skimmiol, m.p. 279-281° C., and essential oils. While isolating skimmianine from the leaves of *Skimmia laureola* for collecting an authentic sample of the alkaloid, it has been found by the authors that the leaves contain three more active principles which have not been recorded by previous workers. One of them is isopimpinellin (III); a dimethoxy-furo-