Table 1. The measured kinematic viscosities ν_{eg} and ν_{co} of ethylene glycol and castor oil respectively as functions of the temperature The numbers in parentheses indicate the deviation of the actual temperature from the nominal one

Nominal temperature (°C)	ν_{eg} Centistokes	ν_{co} Centistokes
10	29 73	2560
		(+ 0 1)
15	23 38	1640
20	18 69	1080
	(– 0 1)	(– 0 2)
25	15 13	707
		(+ 0.1)
30	12 45	500
		(+ 0 2)
35	10 28	360
	(+ 0 2)	(– 0 1)
40	8 70	257
	(– 0 1)	(+ 0 1)
45	7.33	192
50	6 31	145
	(– 0 1)	(– 0 1)

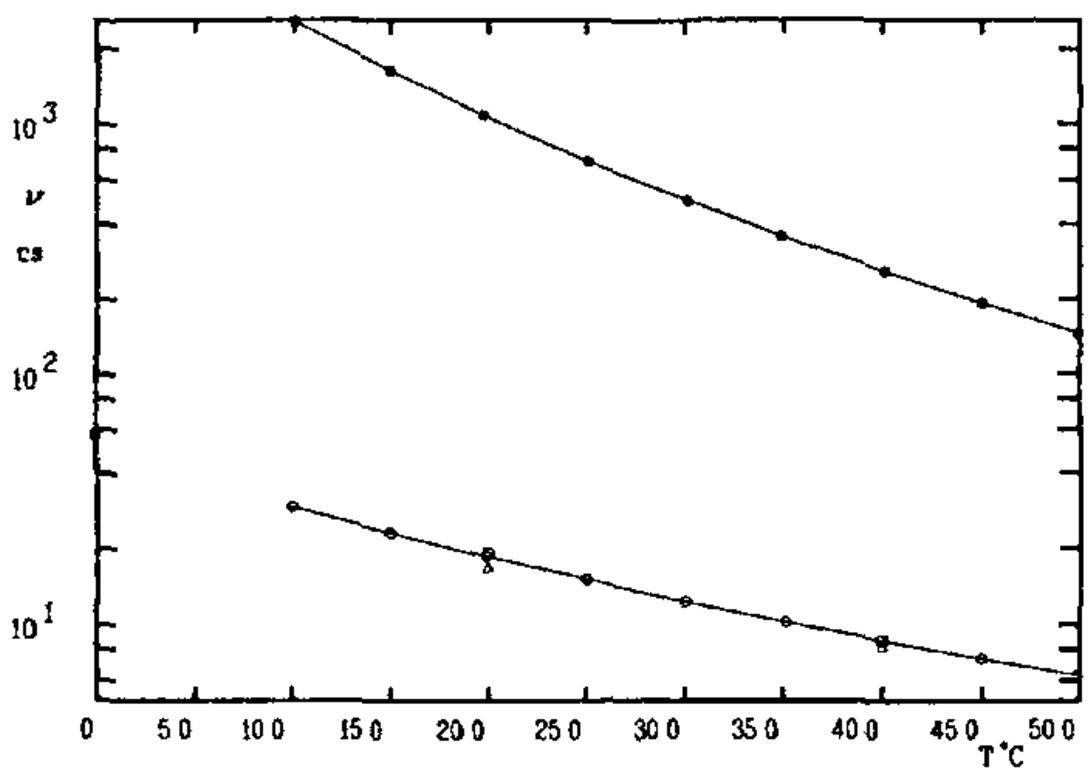

Figure 1. The kinematic viscosities of ethylene glycol (lower curve) and castor oil (upper curve) as functions of temperature △ *Handbook of Chemistry & Physics*, □ Eckert & Gross, ○ present data

Our data when compared with some limited data available in the literature (Figure 1) indicate that our results for ethylene glycol agree fairly well, where available, with those in the *Handbook of Chemistry and Physics*[4] and very well with the data in Eckert and Gross[5]. We have not come across any reliable data on castor oil to make a comparison. For modelling purposes it is more convenient to have the data in the form of approximate analytic representations. We suggest the following correlation to represent the data

$$\ln \nu = a + bT + cT^2 + \ldots \quad (1)$$

By a least squares fit we find that for ν in centistokes and T in °C, a, b and c take the values 3.89258, – 0.05285 and 0.00024 in the case of ethylene glycol; for castor oil the corresponding values are 8.81178, – 0.10136 and 0.00049 respectively. With these values the percentage errors in the representation vary from – 0.67 to 0 49 for ethylene glycol and from – 3.6 to 0.87 for castor oil. Considering the ranges involved these deviations are reasonable.

In conclusion, we believe that Table I and correlations (1) should be useful to anyone making relative viscosity measurements for fluids of moderate and high viscosity.

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2 *Annual Book of ASTM Standards*, Part 23 (petroleum products and lubricants), American Society for Testing & Materials, 1979
3 Shankar, P N and Manoj Kumar, *Proc R Soc (London)*, 1993 (to appear)
4 *Handbook of Chemistry and Physics* (ed Lide, D R), CRC Press, New York, 1990
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Census of mycoflora associated with the Shilajit rocks

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The formation of Shilajit is a complex organic phenomenon. However, micro-organisms play an important role in the proliferation of Shilajit. This note reports an attempt made to study the details of the mycoflora associated with Shilajit and its associated rocks.

A survey of the Jaurasi area in Almora District, Kumaon Hills in Uttar Pradesh was carried out and the Shilajit samples in the form of exudation on small pieces of rocks were collected separately in sterilized polythene bags using sterilized sculper.

Potato dextrose agar medium was used to isolate micro-organisms adhering to the rocks and exudation of Shilajit both by the pressed technique and dilution plate method. The culture plates were kept at 28°C under incubation for seven days. The colonies of organisms in petri dishes were transferred in culture tubes containing the same medium (PDA) after making them in pure form for their respective growth and identification The spectrum of fungal inhabitants showed the presence of

Table 1. Fungal organisms and their respective population (%) isolated from Shilajit rocks at Jaurasi area (Almora)

Fungal organisms	Population occurrence (%)	Fungal organisms	Population occurrence (%)
Aspergillus sydowii (Bainier & Sartory) Thom & Church	50	*F. moniliforme* var *subglutinans* (Wollenw & Reinking)	50
Aspergillus niger Van Tiegh	100	*Hormoconis resinae* (Lindau) Van Arx & do Vries	50
Aspergillus ochraceus (Whilhelm)	50	*Mrimbla ingelheimense* (Van Beyma) Pitt	50
Aspergillus ustus (Bainier) Thom & Church	25	*Penicillium aurantiogriseum* (Dierck)	25
Alternaria alternata (Fr) Keeissler	50	*Pestalotiopsis* sp (Steyaert)	50
Absidia corymbifera (Conn) Sacc & A Trotter	50	*Rhizoctonia* sp D C Ex Fr (Sacc)	25
Botryodiplodia theobromae (Pat)	50	*Sporomiella isomera* Ahmed and Cain Dried Down.	50
Cladosporium oxysporum (Berk and M A Curtis)	75	*Trichothecium roseum* Link ex Fr. (acc)	75
Fusarium equisiti (Corda) Sacc	50	*Ulocladium chartarum* Preuss Simmons	75
F compactum (wollenw) W Gordon	50		

19 organisms which were later identified from CMI, England. Colony counts on the basis of total population of various fungi were recorded and calculated as follows:

$$\text{Population/cm}^2 = \frac{\text{total number of the colonies of the organism appeared in the plates}}{\text{area of the washed surface}} \times \frac{\text{volume of surface washing}}{\text{number of samples}}$$

It is apparent from Table 1 that the composition of mycoflora associated with the samples of Shilajit showed the presence of 19 fungal organisms. On the basis of population percentage, the epiphytic mycoflora has been grouped into four categories. Among them, one fungal form *Aspergillus niger* as 100%; three forms – *Cladosporium oxysporum*, *Trichothecium roseum*, *Ulocladium chartarum* as 75%; eleven fungal organisms – *Aspergillus sydowii*, *A ochraceous*, *Alternaria alternata*, *Absidia corymbifera*, *Botryodiplodia theobromae*, *Fusarium moniliforme*, *F. equisiti*, *F. compactum*, *Merimbla ingelheimense*, *Pestalotiopsis* sp. and *Sporomiella isemera* as 50% and the remaining four forms *Aspergillus ustus*, *Hormoconis resinae*, *Penicillium aurantiogriseum* and *Rhizoctonia* sp. as 35% were found in the association of Shilajit. It is interesting that no bacterial association could be seen.

The census of Shilajit mycoflora also depicted clearly that the major portion of fungal forms was constituted by members of Moniliales of the class fungi Imperfectii followed by Melanconiales and Sphaeropsidales of the class Ascomycetes. Therefore, it is presumed that the fungi belonging to Moniliales play an important role in proliferation of Shilajit from the rocks. The vegetation, such as *Euphorbia royleans*, *Trifolium repens*, *Rhus* spp. and *Ficus* spp. was observed to grow around Shilajit-bearing rocks. The majority of plants have latex in them. In addition, nature of associated rocks, atmospheric conditions, rhythmic seasons, etc., may have also played vital roles in its formation. Nevertheless, the study of chemical composition of each fungal form is to be carried out to ascertain the chemistry of Shilajit.

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Incidence of three Mendelian traits in five endogamous populations of Purnia, Bihar

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Incidence of three Mendelian traits, viz ABO blood, Rh blood group and PTC taste ability was studied in randomly selected representative samples of five endogamous populations of Purnia, Bihar. Allelic