2. Sridhar. G. R., Proc Fourth Annual Conference Thyroid Assoc. (India) (ed. Shah, D. H. and Noronha, O. P. D), Bombay, 1991, pp. 15–19.
3. Chakravarthy, B. N., Ghosh, S., Kabir, S. N., Goswami, S. and Pakrashi, A., *J. Obst. Gynecol., India*, 1991, **41**, 505–509.
4 Sridhar, G. R. and Nagamani, G., *J Assoc Physicians India*, 1993, **41**, 88–90.
5. Larsen, R. and Ingbar, S. H., in *Williams Textbook of Endocrinology* (ed. Wilson, J D. and Foster. D W.), W. B. Saunders Co, Philadelphia, 1992, pp. 449.

G. R. SRIDHAR

Endocrine and Diabetes Centre,
15–12–16 Krishnanagar,
Visakhapatnam 530 002, India

Saksanaea vasiformis, an ecologically important fungus on rice from India

Saksanaea vasiformis Saksena is the only species known so far in the genus *Saksanaea*, which was established by Saksena[1] in 1953. It was first isolated from forest soil near Sagar, Madhya Pradesh, India. Subsequently, it was recorded from Panama[2]. Dean *et al.*[3] reported *S. vasiformis* as a causative agent of cranial zygomycosis in the United States. Torell *et al.*[4] attributed a case of pre-leukaemic syndrome in a female patient to *S. vasiformis*. Oberle and Penn[5] isolated *S. vasiformis* from necrotic wrist lesion of a male patient.

On routine examination of paddy varieties of Puttur taluk, Karnataka, for mycoflora studies by blotter method, a total of 46 species of fungi, including *S. vasiformis*, were isolated[6]. *S. vasiformis* was isolated from a high yielding variety of paddy (Sakthy) collected from Noojibalthila village of Puttur taluk. The frequency of occurrence of fungus is 0.5%. Component plating of seeds of this variety showed the occurrence of the organism in the husk (0.5%) and grain (0.2%). The fungus was not located in the embryos.

The fungus was not observed on other varieties of paddy collected from Mangalore and Buntwal taluks[7]. The fungus is characterized by a flask-shaped stalked collumellate sporangium (Figure 1).

Figure 1. Collumellate sporangium of *Saksanaea vasiformis* Saksena.

As stated earlier the fungus can cause mycosis of various types in human beings[3–5]. Even though a detailed epidemiological study of the various types of mycosis among the people living in this area has not been undertaken, it is possible that the farmers who constantly handle paddy in this region can be infected by this pathogen during harvest and processing. Further investigation on this line is worth undertaking.

1. Saksena, S. B., *Mycologia*, 1951, **45**, 426–436
2. Farrow, W. M., *Mycologia*, 1954, **46**, 632–640.
3. Dean, D. F., Ajello, L., Irwin, R. S., Woelk, W. K. and Skarulis, G. J., *J. Neurosurg.*, 1977, **46**, 97–103.
4. Torell, J., Cooper, B. H. and Helgeson, N. G. P., *Am. J. Clin. Pathol.*, 1981, **76**, 116–126.
5. Oberle, A. D. and Penn, R. L., *Am. J. Clin. Pathol.*, 1983, **80**, 885–890.
6. Madhusoodhanan Pillai C., M Phil dissertation, Mangalore University, Mangalagangothri, 1991.
7. Sheeba, T., M Phil dissertation, Mangalore University, Mangalagangothri, 1989.

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C. MADHUSOODHANAN PILLAI
RASHEED AHMED

Applied Botany Division
Mangalore University
Mangalagangothri 574 199, India

Viviparism in *Cocos nucifera* Linn.

A coconut tree in a plantation at Adayur Village, Salem District, Tamil Nadu, has many seedlings directly coming out from the inflorescence.

The whole tree bears only seedlings and no coconut is formed. A large number of inflorescences are produced, one each from axillary bud. Once this breaks open a seedling comes out. These seedlings grow along with the leaves. Once the lowermost leaf falls off, the seedling also starts withering and falls off later. Since the seedling has no roots, it will not grow in the soil after dispersal. The whole process appears like a viviparous germination.

Viviparism, germinating seeds attached to mother plant, is a common character, witnessed in many mangrove plants, like *Rhizophora mucronata* Poir, *Avicennia officinalis* L., *Bruguiera sexangula* (*Lour*) Poir, etc[1,2]. It is primarly an adaptation to overcome saline and water logged soil conditions. So the fruit germinates when attached to the mother plant. In *Cocos nucifera* Linn. the nourishment for the developing embryo comes from

cellular and watery endosperms. During the development the watery endosperm becomes cellular and spongy meat, from which the developing embryo draws its nourishment. This is common in palms. In animals the viviparism is quite different and the entire development takes place within the mother's uterus. Mother directly supplies food to the foetus from her body through placenta. While recording the details of germination in normal coconut plants, a totally different viviparism was observed. Formation of spathe is seen but inflorescence, peduncle, etc. are not noticed inside.

Once the spathe breaks open a seedling comes out in each spathe. Before germination, normal seeds have dormant period. It varies in various plants. The longest dormancy period is noticed in lotus growing in Kashmir. Dormancy is totally absent in viviparous plants.

However, in *Cocos nucifera* the formation of seedling is not from any seed, but directly from the reproductive cells in spathe which suggest that it is not a typical case of viviparous. Besides this, the conditions are not congenial for this process. Soil is red loamy. Salinity and water logging are also not noticed. Under these environmental conditions viviparous development is ruled out. The other possibility is the formation of 'Witches' broom' type of abnormal growth due to infection of inflorescence as noticed commonly in *Mangifera indica*. In mangoes, the whole inflorescence turns into a leafy structure giving the appearance of 'Witches' broom'. Except the first cotyledonary leaf the remaining leaves resemble the normal seedlings. This is a case of abnormal development. Though it appears like a viviparous growth, it is a case of abnormal germination from the reproductive cells of inflorescence.

1. Dogar, J. C., *Sylvotorp. Philipp. Res. J.*, 1983, 7, 177–216.
2. Dogar, J. C. and Sharma, A. K., *J. Andaman Sci. Assoc.*, 1989, 5, 72–73.

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K. S. MUNIAPPAN

Kendriya Vidyalaya
Central Marine Fisheries Research Institute, Mandapam 623 520, India

New find of diamond-bearing kimberlite in Raipur district, Madhya Pradesh, India

In 1991–92, the Directorate of Geology and Mining, Madhya Pradesh initiated detailed survey and petromineralogical study of the area of southeastern part of the Raipur district, MP. During the survey an altered yellowish-green coloured, highly weathered rock of kimberlitic affinity was encountered within the coarse grained granite, near the village Bahradih.

The area is located about 2 km SE of village Bahradih (20° 13′ 30″ : 82° 12′ 13″) and included in survey of India Toposheet No. 64 L/4, (Figure 1).

The lithounits exposed in the area belong to the Archean and Upper Proterozoic (Chhattisgarh Supergroup) and are represented by granite/granite gneiss, impersistent conglomerate/gravelbed, overlain by sandstone, forming Khariar plateau.

Exposure of the yellowish green weathered kimberlitic rock with a thin cover of black soil, having maximum thickness of about 0.30 m, is in the nala cutting in the coarse grained porphyritic granite terrain. It is occupying an area of about 0.04 km² and its depth persistence up to 10.50 m has so far been confirmed.

Petromineralogical study of this weathered kimberlitic rock showed the presence of Serpentine (after Olivine) with subordinate pyrope garnet, phlogopite, magnetite, ilmenite, enstatite and chrome diopside. Beside these minerals, diamonds weighing 0.12 and 0.08 carat has also been recovered.

The trace elements of this kimberlitic

Table 1.

Bahradih	Kimberley blue ground*							
SiO_2	40 69	46.83	38.29	32.03	30.32	38.08	36.57	35.49
Al_2O_3	10.58	3.71	2.66	2 90	2.74	2.46	5.09	3.42
Fe_2O_3	10.80	3.24	5.77	6 12	4.50	24 48	13.75	6.37
FeO**	—	4.35	2.93	3.40	4.09	2.59	4.68	3 02
TiO_2	2.20	1.34	2.00	1.73	1.78	Nil	Nil	1 65
CaO	4 03	3.83	2.42	7.60	10 40	4 14	8.49	5 12
MgO	12.09	21.33	29.46	33.43	29.60	12.88	11.85	30.98
K_2O	0.60	0 70	1.03	1.34	0.75	0.84	0.64	2.61
Na_2O	0.60	0 63	0.30	0.35	0 45	1.12	2.55	0.20
P_2O_5	0.46	0.74	1.44	1.45	1.34	0 67	0.58	0 63.
CO_2	—	—	0.20	2.50	6.21	1.67	4 61	3 03
H_2O^+	LOI⁻	7.95	3.13	0.51	1.19	0.25	5.47	0.47
H_2O^-	17.10	5.22	10.19	6.31	6.56	10.14	6.31	6.69

*Washington, H. S., *Chemical analysis of Igneous Rock*, U.S. Geol. Survey, Paper 99. (Source: Sinar, K. P., 1930, pp. 149–150).
**FeO calculated as Fe_2O_3.