

Collecting Rice in the Lake Alaotra Region in Madagascar

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Introduction

Owing to its geographical position and history, Madagascar possesses large variability in the cultivated rice, Oryza sativa L. Growing on the island are at least 2 wild African species of rice, O. longistaminata and O. punctata.

The island was populated by Indo-Malayan immigrants and then by African, Arabic, Indian and European immigrants; the origins of the cultivated forms are, therefore, multitudinous. Moreover, rice culture is found in ecologically different regions throughout the country under a wide variety of cultivation practices. The IBPGR sponsored a collecting mission in cooperation with the Ministry of Scientific Research, Technology and Development (MRSTD) and Office de la Recherche Scientifique et Technique Outre-mer (ORSTOM) in May-June 1984. The mission covered the Lake Alaotra region (northeast of Antananarivo) and the area from Antananarivo to Ambatondrazaka.

Material collected

In the case of Oryza sativa the majority of samples was taken in fields, except for early-maturing cultivars which were collected from farmers' stores. Since rice is grown as mixtures of cultivars, bulk samples were taken with at least 10 panicles of each cultivar present. O. longistaminata populations were sufficiently fertile to allow collection of seeds in bulk. In total 165 samples (161 of O. sativa and 4 of O. longistaminata) were collected.

From information obtained from the

Tsimbazaza herbarium at Antananarivo, it is known that O. longistaminata is also present on the west coast (Majunga region) and that O. punctata is present in the northwest (Antohily) and in the east (Nosy Varika).

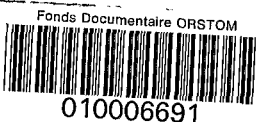
The material collected was assembled in Antananarivo and then sent to the seed unit of the Royal Botanic Gardens Kew, UK, for processing and despatch on behalf of the IBPGR to the International Rice Research Institute (IRRI), Philippines for long-term conservation and to ORSTOM, Ivory Coast for evaluation and multiplication.

Rice cultivation in the Lake Alaotra region

The depression occupied by Lake Alaotra is a sedimentary fertile plain nearly entirely occupied by rice fields. In this plain, tilling takes place from September to December. Sowing is either broadcast in the fields or in the nursery and in the latter case, transplanting is carried out 2 months after sowing. In May-June fields are harvested and bundles are threshed in the fields.

The produce is generally consumed by the family, although some large companies grow long-grain rice for exportation. A few farmers keep seeds for planting next year but others prefer to buy them each year from one of the companies or from the agricultural station of Lake Alaotra.

Lake Alaotra is bordered by a mountainous belt which contains a number of wide basins. Each valley is occupied by rice fields, some of which are terraced and where paddy is practised. A peculiarity of the Didy depression is that



tilling is by the passage of oxen through the paddy fields and not by means of a plough. In addition to paddy, 2 other types of rice cultures are found in this region. Both are upland cultivation; the first is called "tavy", and consists of sowing rice directly in seed-holes using a pointed stick; and the second is called "tanety", and is practised on the summit of rounded, arid hills. Tanety requires that the soil be tilled before sowing in seed-holes. For these 2 upland cultures, crops are sown in October-November and harvested in March-April. Tavy rice is harvested by hand with a knife and the paddy is threshed by treading just before use. Tanety is harvested with a sickle. Farmers are not attached to their traditional cultivars and are seeking high yield. Since mixtures are often grown, however, it is still possible to find traditional forms; nonetheless, these are disappearing. It is difficult to find traditional cultivars introduced from elsewhere, such as Ali Combo which originated from the Comores (and possibly

Tsipala, a vernacular name also found in India, according to P. Beaujard). Studies of genetic variability are being made using techniques of electrophoresis and the phenol reaction (Oka, 1958). The phenol reaction of the hull permits a good separation of the 2 types, indica and japonica. Of the rice cultivars from the Lake Alaotra region, 75% are phenol positive (indica) and 25% are phenol negative (japonica).

Electrophoresis shows a large variability in isozymes within the material collected. There is an almost perfect correspondence with the phenol reaction and the 2 types, indica and japonica. This is demonstrated by the presence of specific isozymes (Second, 1984). The isozyme distribution and the classification of the cultivars according to their electrophoretic pattern, are now in progress. Japonica types are mainly encountered among upland cultivation (tavy and tanety rice), whereas aquatic rices are mostly of the indica type.

References

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RESUME

En raison de sa position géographique et de son histoire, Madagascar présente une grande variabilité pour l'espèce cultivée de riz Oryza sativa L. En outre, au moins deux espèces africaines sauvages de riz, O. longistaminata et O. punctata, croissent sur l'île. Le riz est cultivé dans tout le pays dans des régions écologiquement différentes et selon des pratiques très diverses. En 1984, le CIRP a parrainé une mission de collecte en coopération avec le Ministère de la recherche scientifique, de la technologie et du développement ainsi qu'avec l'ORSTOM. La mission s'est rendue dans la région du lac Alaotra (au nord-est d'Antananarivo) et sur la route qui relie Antananarivo à Ambatondrazaka. Au total, 165 échantillons ont été recueillis.

RESUMEN

Debido a la posición geográfica y a la historia de Madagascar la especie de arroz cultivado Oryza sativa L. tiene allí una gran variabilidad. Además, en la isla crecen al menos dos especies africanas silvestres de arroz, O. longistaminata y O. punctata. El arroz se cultiva en todo el país con arreglo a una amplia gama de métodos. El CIRP patrocinó una misión recolectora, que se realizó en 1984 en cooperación con el Ministerio de Investigaciones Científicas, Tecnología y Desarrollo y con la Oficina Nacional francesa de Investigaciones Científicas y Técnicas en los Territorios de Ultramar. La misión abarcó la región del Lago Alaotra (al noreste de Antananarivo) y el camino que va desde Antananarivo hasta Ambatondrazaka. Se recogió un total de 165 ejemplares.