Summary of the dossier

Applicant : Jatropower AG, Haldenstrasse 5, CH 6340, Switzerland

This is a notification for authorisation by Jatropower AG to place on the European Union (EU) roasted and ground xuta seed kernels for human consumption, as a Traditional Food from a third country.

This roasted and ground xuta kernel is produced from the seeds of xuta plants (edible variety of Jatropha curcas L.) that are found naturally in several regions of Mexico, especially in regions of that country inhabited by people from the Totonaca and Huasteca cultures. The xuta plants are often grown by people belonging to these cultures as a backyard plant. The plants produce fruits that contain 2-3, rarely 4 seeds. These seeds contain fleshy kernels that are edible, protected by a hard seed-coat. Traditionally, the kernels are eaten by humans directly after roasting and in the ground form as part of several traditional dishes.

Available literature suggests that xuta kernels have been consumed in Mexico since pre-historic times. The fruits are ready to be harvested when they turn yellow. The harvesting is done traditionally and in the proposed commercial plantations by manually plucking the yellow or brown fruits directly from the plant. The harvested xuta fruits are then sun-dried and de-husked to expose xuta seeds, which can be stored without damage under non-humid conditions for more than one year. These seeds are then de-shelled to expose the creamy-white coloured xuta kernels, which can be stored for up to three months if kept in air-tight containers away from light. The de-husking of the fruits and the de-shelling of the seeds to produce xuta kernels are mechanised using existing machinery for oil-seed processing available in the market or modifications thereof. This mechanisation of fruit processing, which is similar to the traditional practices in Mexico, will not change the properties of the xuta kernel meal and they remain same as that produced traditionally in the endemic regions of Mexico. Dry-roasted xuta kernels are consumed traditionally as a snack and roasted and ground xuta kernels are used as an ingredient in many traditional recipes in Mexico, mainly in the regions where people of the Totonaca and Huasteca cultures live. The present proposal seeks to introduce roasted and ground xuta kernels as a high energy, high-protein human food for the benefit of consumers in Europe.

Before consumption by humans, the roasted and ground kernels are to be heated in presence of moisture at over 125°C for at least 15 minutes to neutralise any residual antinutrients contained in it. Our analysis showed that an antinutrient, namely trypsin inhibitors, is still active after the roasting and grinding and that this activity is almost completely destroyed by moist heating as prescribed above. The roasted and ground xuta kernels have 24-30% crude protein and 56-61% lipids and 6-10% crude fibre. The high nutritional quality of the proteins and oil in the xuta kernels has been shown in several scientific studies.

Since xuta plants, from which the xuta seeds are harvested, resemble conventional toxic jatropha plants in general appearance, precautionary procedures are required to ensure non-contamination of xuta seeds (xuta kernels are produced by deshelling xuta seeds) through toxic jatropha seeds. For this, the xuta plantations from which the seeds are harvested need to be made up of confirmed xuta plants only. The edible nature of the seed kernels of the xuta mother plants should be confirmed by HPLC analysis, which will show the absence of toxic phorbol esters in them. Xuta plants always produce seeds that are free of phorbol esters and are hence always edible for humans, irrespective of whether the underlying flowers were pollinated by pollen from edible or toxic jatropha plants. The seeds produced from confirmed xuta plants through self-pollination or pollination with pollen produced by other confirmed xuta plants have

been proven to develop into xuta plants. Jatropower has developed a multi-level screening processes involving visual screening, screening using genetic markers and HPLC analysis encompassing the mother plants, seedling nursery stage as well as the early plantation stage to ensure purity of the xuta seed production plantation. Only seeds produced from such verified plantations should be used for raising commercial xuta plantations. The producers of xuta seeds should maintain clear documentation of the source of xuta seeds or planting material, the xuta harvesting, seed storage and packaging processes to ensure full traceability of their seeds to the confirmed xuta plantations. Before use of the xuta products as human food, representative samples of the stored xuta seeds or other products should be tested lot-wise by HPLC analysis at the last link of the value chain to confirm the absence of phorbol esters in them. The xuta kernel powder can be used as an ingredient in composite foods (e.g., in baking mixtures for bread, cakes and other bakery items) or as an ingredient in high-protein foods for human consumption.

Considering the chemical composition and its traditional consumption pattern in Mexico, a maximum consumption of 20g per person per day is proposed for the EU. The inclusion of roasted and ground xuta kernels will improve the nutritional quality of the foods including it because of its favourable properties.

Based on its chemical composition and nutritional quality, roasted and ground xuta kernels have high potential to supplement the growing demand of oil and protein rich plant products, that are currently imported into the EU. In addition to its nutritional advantages, demand for xuta products, e.g., from the EU will result in its increased cultivation. Xuta plants can be cultivated in areas where established crops such as soybean will not grow (drought prone areas with eroded, poor soils). Being a perennial plant, plantations of xuta can even help to enrich and reclaim such eroded land over time. An increase in xuta cultivation, therefore will not result in clearing of forest areas for expansion of its cultivation. In addition, it will develop into a new drought tolerant, nutrient efficient crop that will generate incomes and a value chain in structurally weak regions in the world. Xuta plants have not yet been genetically modified, representing another advantage for its products, which are guaranteed GMO-free.