Chewing khat

More than seven centuries ago, a medical book written in Arabic recorded the effects of chewing khat. Today several million people in East Africa and the Arabian peninsula are habitual chewers—and some of them become addicted

by Peter Kalix

The chewing of leaves of the khat shrub (*Catha edulis*) is common in certain countries of East Africa and the Arabian peninsula, and some khat users are subject to psychic dependence on the drug. The effects of khat are reminiscent of that induced by amphetamine. Recently, the alkaloid cathinone has been isolated from khat leaves and this substance produces effects in animals that are analogous to those of amphetamine and that correlate well with the effects observed in humans after chewing khat.

The use of khat as a stimulant is thought to antedate that of coffee, and the first written account of the effects of khat appeared more than seven centuries ago in an Arabic medical book. Today, several million people are habitual khat chewers. Formerly, the use of the material was confined to the regions where the plant was grown, because only the fresh leaves give the desired stimulating effect. But in recent years the habit has expanded considerably because khat can be transported much more rapidly to distant places. The cultivation and use of khat have profound socio-economic consequences for the countries concerned and make a considerable impact on the life of the individual. Khat chewers are mostly male and the harm to their families is due to negligence, dissipation of family income, and inappropriate behaviour. Many of them spend money on khat while neglecting their vital needs, which indicates psychic dependence on the drug.

The main effects of chewing khat are a moderate degree of euphoria and

*Photo* WHO

*Khat is sold openly on the streets in many countries of the Middle East.*
excitation often accompanied by loquacity. High doses may induce hyperactivity and, sometimes, manic behaviour. Although there have been several reports of cases of psychosis due to khat chewing, this is rather exceptional, probably because of the physical limits to the dose that can be absorbed. Khat is an effective anorectic, that is, it diminishes the appetite, and this largely explains the malnutrition often seen in habitual khat users. It also causes hyperthermia and an increase in respiration.

The effects of khat are, of course, difficult to quantify since the leaves are a non-standardised material, the potency of which depends on freshness and origin, and there are certainly differences between chewers in the efficiency of the mastication process.

The international organizations were confronted with the problems associated with khat as early as 1935, when the League of Nations Advisory Committee on the Traffic of Dangerous Drugs discussed two technical reports on the subject. Through the UN Commission on Narcotic Drugs, international attention was once again directed to the nature and extent of khat use, and in 1971 the Commission recommended that the UN Narcotics Laboratory should reinvestigate the chemical composition of khat. These studies led to the isolation from khat leaves of an alkaloid that is chemically similar to amphetamine and for which the name cathinone was suggested. It was also observed that, to a certain extent, the cathinone content correlated with the market price of khat.

**Active principle**

Once this substance was recognised as the major active principle of the leaves, it was synthesised and made available to pharmacologists through WHO, which also appointed an advisory group to carry out an initial survey of the pharmacological properties of the new alkaloid. These studies revealed that the pharmacological profile of cathinone closely resembles that of amphetamine.

In experiments with such animals as rats and monkeys, which were trained to administer the drug to themselves, the pattern observed was described as "spree-type": the animals took the drug frequently day and night, stopping only upon becoming exhausted, and beginning again after recovery. This pattern corresponds to that seen in amphetamine-dependent humans.

Thus, in terms of pharmacology, the chewing of a portion of khat is tantamount to ingesting amphetamine—a fact discovered mainly through the impetus given by WHO to the identification and pharmacological investigation of the new compound. This finding shows that there is a certain degree of danger associated with khat use. Although immediate and severe medical problems are infrequent (because the cathinone is diluted in the other material of the leaves), the use of khat often leads to health problems, and this, taken together with the serious socio-economic consequences of the habit, makes its limitation desirable.

Effective reduction of the use of khat would relieve several million people of a costly, counter-productive and potentially addictive habit. It would even free scarce arable land and irrigation water that are, at present, used for cultivating khat. Several countries concerned by the khat problem are now taking steps to restrict its use, and in order to catalyse these efforts, WHO has sponsored field studies on medical and epidemiological aspects of khat chewing.