THE ISOLATION OF THE THERAPEUTIC PRINCIPLE FROM A SURINAM NEGRO FOLK-MEDICINE

ANTI-PARADENTOTIC EFFECT OF CIGAR-STUBS

by

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INTRODUCTION

1. AIM OF THE WORK.

A few years ago, intending to investigate the bactericidal properties of vegetable juices and studying the literature devoted to this subject, I came upon data concerning tobacco and nicotine and their effects on bacteria and other living organisms. A person, who was later to be of great assistance to me, drew my attention to the fact that Professor Dr P. C. F. U. had intended to start a similar research. Prof. F. U. had noticed during his research work among the Maroons in Surinam that no paradentosis occurred there.

The Maroons usually have sound and strong white teeth and a healthy paradentium. Toothbrush and toothpaste are unknown to them; they clean their teeth and gums by rubbing them with cigar-stubs. Professor F. U. thought there might possibly be some causal connection between the healthy condition of teeth and paradentium and the treatment with cigar-stubs. In his neighbourhood there happened to be some obstinate cases of paradentosis. At his request the patients massaged their teeth and gingivae with the ash end of a cigar-stub some three times a day. The effect was already noticeable within a few days; the swelling of the gums went down and secretion of pus discontinued; the dentist was amazed at the improvement. Unfortunately, the second world-war broke out and Professor F. U. has not been able to give any further attention to this research. I therefore felt justified in taking up this investigation, which took almost four years.

Tobacco and tobacco smoke were formerly used as medicine. In Mexico the smoking of tobacco was considered a remedy for asthma,
while tobacco leaves were used to cure ulcers and wounds. Tobacco taken as snuff was a remedy for headache. In the Braunschweiger Ratsapotheke of 1598 several recipes for tobacco preparations are given. Preparations from tobacco were herba, syrupus, oleum, unguentum and aqua nicotiniana (47). As late as in the last century an ointment of nicotine salicylate in a proportion of 0.1 to 2.5 % was used against scabies and several other parasitical diseases (56). On account of their high toxicity tobacco and nicotine are no longer used as medicine.

As the incidence of paradentosis is fairly high — according to Heinrich (20) 14.2 % of the population suffers from this progressive rarefying process of the supporting tissues of the teeth — and its treatment presents many difficulties, at least when the preservation of the teeth is aimed at, there was a sound motive for starting this investigation, to find the therapeutic principle of the drugs concerned and if possible to formulate a medicine that might prove utilisable in practice.

2. The cigar-stub.

The cigar-stub contains concentrated substances originating from the combustion and dry distillation of tobacco. The nature and quantity of these products depends not only on the composition of the tobacco, but also on the rate of smoking and the moisture content of the tobacco (15).

Bömer (7) records the following components of tobacco smoke: nicotine, ammonia, carbon dioxide, cyanides, thiocyanates, hydrogen sulphide, alcohols (such as methanol), aldehydes (such as methanal, ethanal, butanal), ketones (such as diethyl ketone, dipropyl ketone), acids (such as formic acid, acetic acid, butyric acid, benzoic acid, caproic acid), resins, etheral oils, myosmin, pyrrol, pyridine bases (such as pyridine, β-propyl-pyridine, picoline, collidine).

Henry (21) mentions the following alkaloids of the genus Nicotiana: nicotine, nicotimine, anabasine, n-methylanabasine, isonicotine, anatabine, 1-N-methylanatabine, nicotyrine, nicotelline, 2,3'-dipyridyl, nor-nicotine, nicotoine. The nicotoine has only been found in the Turkish type of tobacco. The occurrence of nicotyrine especially in the cigar type of tobacco has been recorded by Wenusch (52).

The following alkaloids, apart from normal alkaloid constituents