

(c) Question does not arise.

MR. CHAIRMAN: Supplementary.

SHRI BISWA GOSWAMI: No supplementary.

MR. CHAIRMAN: No supplementary. You better put your question properly.

SHRI PAWAN KUMAR BANSAL: I would like to know from the hon. Minister what would be the fate of employees in Chandigarh after its merger with Punjab.

MR. CHAIRMAN: Hypothetical question. Next question.

Installation of 'Quinghao' an Anti-Malaria Medical Plant in India

*426. SHRI MUKHTIAR SINGH MALIK: Will the PRIME MINISTER be pleased to state:

(a) whether Government's attention has been drawn to the news item which appeared in the Hindustan Times of 18th July, 1985 wherein it has been stated that "Quinghao" an anti-malaria medicine plant of Chinese origin has been installed in India by the Central Institute of Medicinal and Aromatic Plants;

(b) if so, what are the details thereof; and

(c) by when this plant is expected to be grown extensively in the country?

THE PARLIAMENTARY SECRETARY (SHRI ARUN SINGH): (a) Yes, Sir.

(b) The botanical name of the herb of Chinese origin 'Quinghao' is *Artemisia annua*. The active principle contained in this herb is called Artemisinin. Trials abroad have indicated Artemisinin to be effective in treatment of malaria.

(c) Central Institute of Medicinal and Aromatic Plants has carried out cultivation of this herb in pilot scale in Kashmir valley and is planning to conduct evaluation trials and toxicity tests.

SHRI MUKHTIAR SINGH MALIK: Sir, the hon. Parliamentary Secretary has said in his reply that "the active principle contained in this herb is called Artemisinin" and trials on this herb have been carried out in other countries, i.e. abroad. It means the trials have not been carried out in our country. May I know from the hon. Minister whether our scientists and experts have been able to discover the extent of effectiveness of this herb in the treatment of malaria and, if so, has it proved to be more effective than the other malaria drugs available in our country?

SHRI ARUN SINGH: Sir, this plant has been cultivated basically in China and, therefore, the active material has basically been available in China. To the best of our information, some material was also made available to the Walter Reed Hospital in the United States and a very small quantity of 100 milligrammes was sent to the CDRI—Central Drug Research Institute—in Lucknow. The Chinese claim that this active principle is highly effective in both Chloroquin susceptible and Chloroquin—resistant malaria parasites. In our CDRI, with this very small amount of material available some animal trials have been conducted and some effectively has been proved, but the quantity available was not enough to substantiate the Chinese claim.

SHRI MUKHTIAR SINGH MALIK: I would like to know from the honourable Parliamentary Secretary as to when this plant had been cultivated in the Kashmir Valley, whether the plantation has proved to be successful and when the evaluation tests and toxicity tests are expected to be carried out in our own country.

SHRI ARUN SINGH: Sir, only a few grammes of seeds were made available to us and the plant was introduced in Kashmir and it has been grown in one acre in the current cropping season. From the total acreage covered, that is, one acre, 200 to 300 grammes of the active ingredient was found. This will be clinically tried in 1986 in animal trials. Next year four to five hectares are proposed to be cultivated and thereafter similar trials will be held.

श्री जगदम्बी प्रसाद यादव : श्रीमान् मैं सरकार से यह जानना चाहता हूँ कि इस नीति का जिसका चीन में प्लान्टेशन किया गया, तो चीन में क्या इसका एक्सपैरिमेंट हो गया है या नहीं ? क्या सरकार ने चीन के एक्सपैरिमेंट का अनुभव अपने डाक्टरों अपने चिकित्सकों अपने विशेषज्ञों को भेजा है ? क्या उन्होंने इसमें कामयाबी हासिल की है ? हमारा देश मलेरिया से बहुत पीड़ित है और इसकी जो दवाई है इसका असर धीरे धीरे कम होता जा रहा है। तो सरकार ने इसके लिये जो पौधा काश्मीर में लगाया गया है उसका एक्सपैरिमेंट हो गया है ? यदि नहीं तो इसमें जो इतनी डिले हो गई है, उस डिले में द्रुतगति लाने के लिये सरकार चीन में स्वयं अपने विशेषज्ञों को भेजकर और उनके एक्सपैरिमेंट को देखकर क्या उसके अनुरूप यहां काम शुरू करने पर विचार रखती है जिससे यह दवाई के रूप में वितरित हो सके ? इसमें द्रुतगति लाने के लिये सरकार क्या करने जा रही है ?

श्री अरुण सिंह : सर, चीन में यह उगाया गया है और इसका एक्टिव इंग्रीडिएन्ट इस्तेमाल किया गया है लेकिन नये ड्रग की देश में इंट्रोड्यूस करने से पहले जाहिर है कि परी क्लीनिकल ट्रायल की कार्यवाही की जाय क्योंकि भारतीयों में और चीनियों में फर्क है और इस फर्क का ड्रग से असर हो सकता है। इसलिये पहला ट्रायल तो यह था कि वह वस्तु उस सख्ती है या नहीं ? जो फिलहाल सफल हुआ है। लेकिन इस पर लाज स्केल ट्रायल करना पड़ेगा और उसके बाद एक्टिव इंग्रीडिएन्ट टेस्ट किया जायेगा। अगर यह ठीक हुआ तो इसका उपभोग किया जा सकता है।

PROF. (MRS.) ASIMA CHATTERJEE: Mr. Chairman, Sir, "Quinghao" is the trivial name of the plant. May I know from the hon. Parliamentary Secretary what is the botanical name of this species?

MR. CHAIRMAN: No, you cannot put it. Mr. Satya Pal Malik... (Interruption)... Madam, just hear me. I told you, even on the last occasion, that you are a scientist and you are putting questions as if he was a student.

PROF. (MRS.) ASIMA CHATTERJEE: I tell you, Sir, from China the report has come that an Artemisia species produces Artemisinin which has got anti-malarial properties.

MR. CHAIRMAN: Take this information, Mr. Minister.

PROF. (MRS.) ASIMA CHATTERJEE: It is necessary to study the ecological factors and the soil conditions, and also it is necessary to carry out investigation to find out how many years it will take to produce sufficient Artemisin in our country, on our soil, so that the product may be economically viable. So, this is the question.

SHRI ARUN SINGH: Sir, the plant is Artemisia, and the active ingredient is Artemisin. The Member is right that various factors have to be checked up. Currently, on the basis of one acre of land which is covered by the plant, the active ingredient contained is 0.1 per cent.

श्री सत्यपाल मलिक : सभापित महोदय, यह एक अच्छी खबर है कि इस तरह का पौधा मिला है। मैं माननीय मन्त्री जी से यह जानना चाहता हूँ कि मलेरिया चूंकि हिन्दुस्तान में बहुत बड़ी तादाद में खास तौर से गरीब लोगों में फैलता है तो कितने दिन के बाद यह दवाई बड़े पैमाने पर उपलब्ध हो सकेगी जिससे हसारे देश के गरीब लोगों को यह दवाई मिल सके। इससे के इलाईवा इस पौधे से तैयार होने वाली औषधि है उसकी क्या सरकार सरकारी स्तर पर बना कर बेचेगी या जो प्राइवेट आयुर्वेदिक बनाने वाले लोग हैं उनके द्वारा सप्लाइ करेगी ?

श्री अरुण सिंह : कम से कम बो साल तो लग ही जाएंगे ट्रायल करने में।

The rest of the question is academic.

MR. CHAIRMAN: Mr. Prithvijit Singh. He is putting a weighty question.

SHRI VISHVAJIT PRITHVIJIT SINGH: Thank you, Sir.

SHRI SURESH KALMADI: One minute is already over.

SHRI VISHVAJIT PRITHVIJIT SINGH: Mr. Chairman, the hon. Parliamentary Secretary has referred in his various replies to the fact that very minute quantities of the active ingredients of the drug or any particular formulation were available for experiment in India, and that, therefore, proper experiments could not be carried out till we had produced enough of the active ingredients to be able to use them. I would like to know from the hon. Parliamentary Secretary whether this drug is still in the experimental stage in China or whether it has been already introduced commercially. If it has been introduced commercially, what is stopping us from getting the proper amount of the active ingredient from China so that we may be able to experiment ourselves with that ingredient before finally growing our own and making our own?

SHRI ARUN SINGH: Regarding the first part of the question, I do not know whether there is any such thing as commercial introduction in China. What we know is that the Chinese are using the product and they do claim it to be effective.

Regarding the second part, Sir, the Member's suggestion is noted and we will follow it.

DR. LOKESH CHANDRA: Has the Government tried to find out the species of *Artemisia* within our country because in the tribal areas they are using leaves of herbs for the eradication of malaria? We have several species of *Artemisia* in our country and we should be able to utilise our own species, and we need not import the raw material from China.

SHRI ARUN SINGH: The Member's suggestion is noted. It will be followed.

Survey on employment of scientists and engineers

*427. **SHRI VITHALRAO MADHAV-RAO JADHAV:**†

PROF. B. RAMACHANDRA RAO:

Will the PRIME MINISTER be pleased to state:

(a) whether Government conducted a survey in 1982 as to how the scientists and engineers are to be employed;

(b) if so, what are the findings of the survey;

(c) whether this has revealed any defects, imbalances and lacuna in the training employment and research;

(d) if so, what are the details thereof; and

(e) what remedial steps Government propose to take in this regard?

THE PARLIAMENTARY SECRETARY (SHRI ARUN SINGH): (a) to (e) Information is laid on the Table of the House in the enclosed Statement.

Statement

(a) No survey regarding employment of all categories of scientists and engineers was conducted in 1982. However, a sample study of the science and technology Doctorates employed in the R&D establishments in the country and the public and private sector industries, whose in-house R&D Units were registered with the Department of Science and Technology, was carried out during the period 1982—84.

(b) Some of the findings of the study are:—

(i) About 48 per cent of the total employed Doctorates were working in the educational institutions like Universities, Institutes of Technology etc.,

†The question was actually asked on the floor of the House by Shri Vithalrao Madhavrao Jadhav.