

**GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE AND TECHNOLOGY  
DEPARTMENT OF SCIENCE AND TECHNOLOGY  
LOK SABHA**

**UNSTARRED QUESTION No. 4374  
TO BE ANSWERED ON 30.03.2022**

**COPPER MASK**

**4374. SHRIMATI KAVITHA MALOTHU:  
DR. G. RANJITH REDDY:  
SHRI VENKATESH NETHA BORLAKUNTA:  
SHRI PASUNOORI DAYAKAR:**

**Will the Minister of SCIENCE AND TECHNOLOGY विज्ञान और प्रौद्योगिकी मंत्री be pleased to state:**

- (a) whether it is true that Advanced Research Centre for Powder Metallurgy and CCMB, Hyderabad, has prepared a mask with copper to wear during this pandemic which gives 99.9% protection from the infection;**
- (b) if so, the details thereof;**
- (c) the time by which it is likely to come into the market; and**
- (d) whether this mask can be compared with other masks available in the market and if so, the details thereof?**

**ANSWER**

**MINISTER OF STATE (INDEPENDENT CHARGE) OF THE  
MINISTRY OF SCIENCE AND TECHNOLOGY & EARTH SCIENCES  
(DR. JITENDRA SINGH)**

**विज्ञान और प्रौद्योगिकी तथा पृथ्वी विज्ञान मंत्रालय के राज्य मंत्री (स्वतंत्र प्रभार)  
(डॉ. जितेंद्र सिंह)**

- (a) Yes sir, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad and Centre for Cellular & Molecular Biology (CCMB), Hyderabad and Resil Chemicals Pvt Ltd, Bangalore has developed copper based nanoparticle coatings on fabric which can be used as self-disinfection masks which give 99.9% protection from the infection.**
- (b) Copper-based nanoparticles have been prepared by a Flame Spray Pyrolysis (FSP) processing facility established at ARCI and stable nanoparticle suspension is prepared by optimizing the solid loading and pH. A uniform layer of this nano-coating on the cotton fabric with good adhesion was achieved using a suitable binder. The efficacy of the coated fabric against SARS CoV2 was evaluated by CCMB and also tested for other virus and bacteria.**
- (c) Few thousands of masks have been produced by the industry partner, Resil Chemicals Ltd for pilot scale demonstration and they are being tested for certification.**
- (d) The mask cannot be compared with other masks as the technology of other masks available in the market is not well known.**

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