

FOLDSCOPE –AN AMAZING SCIENTIFIC TOOL!

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ABSTRACT

FOLDSCOPE is a pocket sized, flat microscope. This paper microscope is powerful enough to see even bacteria. Dr. Manu Prakash, Asst. Prof. of Bioengineering dept. in US has developed a origami based, user friendly, light weight, pocketsize, durable and affordable paper microscope. Using the camera of mobile phones, foldscope can be used in multitudes. Dept. of Biotechnology, (DBT), New Delhi, has introduced the Foldscope for the researchers as a part of the INDO-US foldscope DBT project. Many individuals, schools, colleges, universities and institutes are using this foldscope to study all kind of samples in their respective fields. Anybody can try using foldscope and discover their own world under the lens. This foldscope should reach to every curious buddy to ignite the interest for science.

Index Terms -Microscope, Foldscope, Science, vector, water.

Short Communication

FOLDSCOPE is a pocket sized, flat microscope. This paper microscope is powerful enough to see even bacteria. Hardly anyone has their own microscope. Usually we see big, bulky, sturdy microscopes only in the schools, colleges and institutes. Since these microscopes are expensive and limited to the laboratory, students never tried them to observe anything other than given in the syllabus. Hence to explore the microscopic world by every aspirant, Dr. Manu Prakash, Asst. Prof. of Bioengineering dept. at the Stanford School of Medicine, US has developed a origami based, user friendly, light weight, pocketsize, durable and affordable paper microscope. After cutting on the punched lines and assembling out of single paper a small paper microscope emerges weighing around 8 grams and comes in a kit with multiple lenses that provide magnification from 140X to 2,000X. Magnets attached to foldscope lens helps to attach it to the smartphones and take pictures with more magnification. It was also known as one dollar Microscope.

Dept. of Biotechnology, (DBT), New Delhi, has introduced the Foldscope for the researchers as a part of the INDO-US foldscope DBT project. Hundreds of individuals, schools, colleges, universities and institutes use this foldscope to study all kind of samples in their respective fields. Researchers are using it to study the microbial world in the water, food, antibiotics, silkworm, mosquito breeding water, plaque microbes, Soil micro-flora, protozoa, helminthic diseases, air pollutants, plant, animal and insect diseases. Also foldscope is used to study agricultural, dental, medical, horticulture and veterinary issues. Even though foldscope looks simple, it is amazing as it is used to study the issues in diverse fields giving solutions to the day to day problems.

Foldscope is sturdy and versatile to use even in the field conditions. Using the camera of mobile phones, foldscope can be used in multitudes. It can magnify the curiosity with better view. Foldsopes are available online at <https://microcosmos.foldscope.com/> website. One can buy Foldscope at Amazon shopping site and at Fundolab of Ahmedabad. There are two types of foldscope models. For beginners, a basic model is good. Once a person is tuned up with this foldscope, one can purchase an advanced deluxe model with other accessories as kit. All the biology experiments of school can be easily studied using Foldscope. Being cost effective, it is easily affordable. Across the globe through various workshops, foldscope is widely used among students and children to explore the world under lens.

Using this Foldscope, authors are working on the DBT projects **“Use of foldscope for public participation in vector borne diseases management and ‘Public participation in mitigating the water borne diseases in tribal areas of Dakshina Kannada”**. The foldscope being very frugal, handy and easy to carry, it can be used in the field to study all kind of things.

Under each project, all over the country, many foldscope workshops were conducted. This awareness has brought tremendous curiosity for science among student folk. In every workshop students were so happy to use this microscope and to observe small things bigger like parts of insects, worms, mosquitoes, ants, flowers petals, food sand, soil, roots, nails, hair skin scrapings, dandruff flakes, onion peel, fungus on the bread, tiny worms in fruits and vegetables etc. The beneficiaries of the workshop were so joyful that each one said “Wow” “Awesome” “So nice, “My God” when they observed things using folsopes. It was a contented feeling to see the thirst of exploration getting quenched in budding scientist. Right from Primary school kid to a researcher it is very useful. Many students who used foldscope and studied things using it were so glad that they said Dr. Manu Prakash can aptly be called as **‘Father of Modern Microscopy’**.

Anyone can try using foldscope and discover their own world under the lens. Foldscope is a wonderful thing to gift anyone being a small paper microscope. Foldscope being frugal has reached many parts of the world and each one is using it in their unique way. An innovative discovery by Dr. Manu Prakash has brought scientific temper in every user. To popularize science, contribution of DBT, New

Delhi, Dr. Manu Prakash and his team of Prakash Lab is astonishing. This foldscope should reach to every curious buddy to ignite the interest for science. A user will truly appreciate that 'Foldscope' is an amazing tool for learning science.

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