CUSTOMISED LIGHT SOURCE FOR SINUSCOPE
A NOVEL DESIGN

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Abstract:
Sinusscopes are durable instruments that deliver excellent visualization needed for diagnostic,
therapeutic and surgical sinus and nasal procedures. It requires a light source like all other
diagnostic for illumination of the objects.

In lieu of expensive cost of commercial external
light source we have designed a hand held
customized low cost light source for sinuscope to
be highly cost effective in routine practice
particularly at places with poor infrastructure. This
customized light source consists of hallow
metallic tube fitted with LED bulb connected with
battery which description we are sending for its
patenting before presenting it for publication

Specification:
Sinusscopes are in regular practice these days
especially owing to their subsidised cost. The
associated hand-held light source (Figure 1) has
replaced the external light source with cable
connection particularly in outpatient clinics
during routine patient examination. The average
cost of the hand-held light source is estimated to
be somewhere from 10,000 to 15,000 INR with
further increment in cost as the rechargeable
battery needs replacement. Our team presents a
basic design that costs less than 100 INR and is
operated with simple slender torch batteries.

The diagrammatic outline of the design is
depicted in (Figure 2). The 3 components (Figure
3) of this devise are (1) a hollow 4 inch rigid
metallic tube with diameter adequate to fit snugly
over the 'light-source' terminal of sinuscope and
also lodge a small bulb, (2) flat LED bulb with
soldered wires at positive and negative terminals
(the LED bulb is just enough to be negotiated
inside the tubular lumen), (3) Slender torch
battery that can be strapped to the metallic tube
and the wires connected accordingly.

The metallic tube is snugly fitted over the 'light-
source' terminal of sinuscope and the LED bulb is
inserted inside the metallic tube just up to a
distance that can nearly touch the 'light-source'
terminal of sinuscope. The wires are delivered out
of the other end and then connected to the
battery strapped outside of the tube (by some
switching mechanism if possible). The quality of
image obtained through this devise is more or less
the same as that obtained with the commercially
available expensive devise (Figure 4).

The total cost of this customised devise is less than
100 INR as compared to its expensive counterpart
and can be managed by ordinary batteries. This is
particularly desirable at peripheral centers where
power cuts do not allow a proper recharge of the
rechargeable battery. With the availability of
extremely cheap sinusscopes, their integration
with this newly designed light source is likely to
improve nasal diagnosis in the community.
Figure 1: Commercial hand-held rechargeable external light source fitted with the sinuscope along the light-source terminal.

Figure 2: Three parts of the novel design (1) Metallic rigid tube that lodges the (2) LED bulb that is connected with wires to the (3) battery strapped along the metallic tube. Note that the metallic tube snugly fits onto the light-source terminal of sinuscope.

Figure 3: A hollow metallic tube and flat type LED bulb with wire connection. The inset depicts the diameter of the metallic tube that is compatible with the diameter of LED bulb.

Figure 4: Comparison of the quality of image with commercial hand-held rechargeable light source (left) with the image as seen by using the novel design.

Picture with Novel design light source

Picture with commercial hand-held rechargeable light source

**Conclusion**

In lieu of extremely low cost and easy availability of all parts in such customized light source with time to time refinement would become very promising instrument in near future.

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An application for patenting this design has been submitted.