Biophoton Imaging Technique

My biophoton images are created with an "Owl Eye" image intensifier. This unusual heavy piece of equipment contains a cascade of first generation image intensifier tubes and a special magnifier tube that creates the output image on a screen. The tubes are linked together via fibreoptics to minimize radiation loss. Light amplification is regulated via the high voltage source located in the bottom of the instrument.

Owl Eye image intensifier system. The label says:

Astrophysics Research Corporation

Harbor City, California

The history of this rare instrument is unknown to me. I have been told that the one I got was used as image intensifier in an X-Ray system.

First generation image intensifier tube from another damaged "Owl Eye" that I partly dismantled a couple of years ago.

As Biophoton Radiation is extremely weak it is essential to collect as many photons as possible in order to get satisfying images. In my experiments I fixed the object of interest (usually plant leaves) with a bit of celltape directly on the fibreoptics surface of the optical input (see image on the left). So the optical fibres pick up the photons directly from the surface of the object with much less light loss than when using conventional lense optics. If you are planning to do similar experiments with image intensifiers: Never power the system on with the optical input exposed to normal daylight - this can lead to permanent damage of the system.

I usually record the intensified image with a simple webcam put in front of the screen of the "Owl Eye" in total darkness.

In my early experiments before good webcams became affordable I tried using a modified hand-held scanner that was rolled over a glass in fron of the image intensifiers screen.