Band, H.T. Michigan State University, East Lansing, Michigan. A method for growing Chymomyza amoena in the laboratory.

Two behavioral traits, wing waving and aggression, seem to pose obstacles to the maintenance of Chymomyza amoena in the laboratory in the manner traditional for Drosophila. Therefore, pint-sized canning jars have been employed, tipped sideways, and capped with kleenex secured by a rubber band. These are referred to as "minicages". Kerr canning jars work best since three of the four sides are clear glass. Each pint-sized jar will hold two media-filled stendor dishes (5 cm wide by 2.5 cm deep) or two or more apple quarters, which are inserted and removed with teethed forceps. Territorial defense in this species is very strong. A watercolor brush is useful for sweeping away the flies from the dishes or from the apple pieces. This method is useful for maintaining stocks, for collecting eggs, larvae or pupae and for doing feeding choice experiments.

Before media-filled stendor dishes are added, a freshly cut apple piece (skin still attached) is inserted into the media. Newly emerging flies have a prefertile period lasting about a week, so the initial dish(es) is (are) discarded, after which oviposition may be allowed to continue for another week in cages of 20-25 adults, then dishes removed, inserted into a clean jar to which is also added a piece of moist paper toweling or kleenex. Dessication is a problem but the paper also provides a pupation surface for those larvae that leave the medium to pupate. If undisturbed, most larvae pupate on the media surface or in the apple piece. Developmental time varies since egg hatchability, duration of the larval and pupal phases all vary. Minimum egg-eclosion time on the applesauce/protein/cream-of-wheat media devised for Michigan C. amoena seems to be 20 days.

The media has a tendency to mold. This may be cut away from the remaining surface or else larvae and pupae transferred to new dishes to continue development.

Band, H.T. Michigan State University, East Lansing, Michigan. A medium for growing Chymomyza amoena in the laboratory.

In Michigan, Chymomyza amoena adults and larvae have been found to be able to use apple as a food source. Maintenance in the laboratory on apple alone results in a decline in fertility after two generations. However, the feeding activity of the females tends to produce a wet surface which presents another hazard when depending on laboratory media to maintain the species.

A medium developed from that devised by Wheeler and Clayton (1965) for the Hawaiian Drosophila and the cream-of-wheat medium developed by Spassky (1943) has worked well. The following recipe yields just over a liter of food, enough for 34-36 stendor dishes (5 cm wide x 2.5 cm deep) for use in glass "minicages":

8 gms Bacto-agar	600 ml distilled water
15 gms Gerber's Hi-Pro	500 ml Spartan applesauce
15 gms Kretschner's wheat germ	(no corn products)
5 gms Kellogg's Concentrate	3 ml propionic acid
45 gms Quick Cream-of-Wheat	9 ml 95% ethyl alcohol

Blend the Hi-Pro, wheat germ, and Concentrate in a Waring blender for several minutes, add the applesauce and blend 5 min. more. Boil 400 ml water in a large pot, add agar, stir till dissolved. Add in the applesauce-protein mixture; rinse the blender with 100 ml water and add to the food mixture. Add the remaining 100 ml water to the cream-of-wheat and stir into the food mixture as it begins to boil. Reduce heat and stir until thickened, usually about 5 minutes. Remove from heat, stirring to cool. Add the ethyl alcohol and propionic acid. The medium can then be poured into a 500 ml beaker, 300 ml at a time, for filling the stendor dishes. These are then cooled, capped and refrigerated until ready to use. No yeast is added. This medium can also be used for D. melanogaster, yeasted or unyeasted.

References: Spassky, B. 1943, DIS 17:67-68; Wheeler, M.R. and F.E. Clayton 1965, DIS 40:98.