Abstract

This chapter describes procedures for the purification of chloroplasts using silica sols. Silica sols have two major advantages as media for density gradients—namely, low viscosity and negligible osmotic potential, allowing the preparation of less damaging isoosmotic gradients and more rapid sedimentation at lower gravitational forces. Use of silica sol media can allow rapid separation of highly intact and physiologically active chloroplasts; however, it should be recognized that the quality of the final preparation would depend on the quality of the initial homogenate. Good chloroplasts cannot be resurrected from poor starting material, and appropriate recipes and procedures must be adapted to the plant material and its primary disruption to give optimum results. A variety of centrifugation procedures can be used with silica sols. The procedures described in the chapter use Percoll, as it is readily available and relatively free from toxic effects. Removal of silica sol may be advantageous if there is any possibility of an effect on physiological function, or interaction (e.g., precipitation or gelling of the sol) with added reagents.