Abstract  Purpose of this study was to determine effects of *in vitro* continuous immersion culture system, solid media, different doses of Thidiazuron (TDZ) (0.5, 1.0, 1.5 and 2.0 mg/l) and Indole-3-butyric acid (IBA) (0.5, 1.0, 1.5 and 2.0 mg/l) on stem segments, microtuber number per plant. *In vitro* continuous immersion liquid culture media and solid media were used in potato (*Solanum tuberosum* L.) cv. Granola for stem segments and microtuber micropropagation. The stem segments were cultured on 1/2 Murashige and Skoog (MS) medium supplemented with 2 mg/l gibberellic acid, 10 mg/l paclobutrazol, 5.0 g/l activated charcoal, 100 g/l sucrose with or without 3.5 g/l phytage; and TDZ and IBA *in vitro*. Liquid medium was distributed to the carrier *in vitro* continuous immersion with supporting net liquid culture system containing glass wool + filter paper layer as substrate. *In vitro* continuous immersion liquid culture media was more suitable and stable for organogenesis of potato microtubers than phytage (3.5 g/l) solid media. After 30-day of incubation, there were 4.76 axillary stem segments formation having 7.21 mm diameter of microtubers weighing 155.74 mg fresh weight. Microtuber formation rate 84.66% and there were 2.06 microtubers per plant at 0.5 mg/l IBA *in vitro* continuous immersion liquid culture media treatment. 1.5 mg/l TDZ treatment had 7.56 axillary stem segments formation having 6.21 mm diameter of microtuber weighing 150.10 mg fresh weight. Microtuber formation rate was 92.55 % and there were 3.82 microtubers per plant. Formation and development of microtubers was lowest at 2.0 mg/l and highest at 1.5 mg/l TDZ concentration. At 1.5 ppm TDZ concentration, microtubers cropped from *in vitro* continuous immersion liquid culture system were bigger and heavier than phytage solid media.