Cultivating Turkey Tail (*Trametes versicolor*) is often considered one of the most forgiving and fastest processes in medicinal mushroom growing. Its mycelium is incredibly aggressive, resilient, and highly resistant to contamination once established. Like Reishi, it is a wood-decaying fungus that thrives on hardwood sawdust blocks.

Below is a detailed Standard Operating Procedure (SOP) for cultivating Turkey Tail indoors.

Phase 1: Materials and Equipment

- **Spawn:** Turkey Tail grain spawn or sawdust spawn.
- **Substrate:** Hardwood sawdust (oak, maple, beech, or a blended hardwood mix).
- **Supplement:** Wheat bran, oat bran, or soybean hulls (soybean hulls + hardwood sawdust is known as the "Master's Mix" and yields excellent results).
- **Grow Bags:** Autoclavable mushroom grow bags with a 0.2-micron filter patch.
- **Sterilization:** Pressure cooker or commercial autoclave.
- **Inoculation Environment:** Laminar flow hood or Still Air Box (SAB).
- **Fruiting Environment:** A grow tent or fruiting chamber with high humidity and good fresh air exchange (FAE).

Phase 2: Substrate Preparation and Sterilization

1. **Mix the Substrate:** Create your fruiting blocks by mixing your dry ingredients. A standard, highly productive ratio is:
    - 5 parts hardwood sawdust
    - 1 part wheat bran (or a 50/50 ratio of sawdust to soybean hulls).
2. **Hydration:** Gradually add water to the dry mix until it reaches approximately **60% moisture content**. (Test this by squeezing a handful of the mixture tightly; only a drop or two of water should come out. If water streams out, it is too wet).
3. **Bagging:** Pack roughly 5 lbs (2.3 kg) of the hydrated substrate into each filter-patch grow bag.
4. **Sterilization:** Load the bags into your pressure cooker or autoclave. Sterilize at **15 PSI (121°C) for 2.5 hours**.
5. **Cooling:** Allow the pressure cooker to depressurize naturally and wait for the bags to cool completely to room temperature (usually 12–24 hours).

Phase 3: Inoculation

Turkey Tail is resilient, but you must still practice sterile techniques during inoculation.

1. **Sanitize:** Clean your hands, workspace, tools, and the exterior of your spawn container with 70% isopropyl alcohol.
2. **Transfer:** In front of a laminar flow hood or inside a SAB, open the sterilized substrate bag and add the Turkey Tail grain spawn. An inoculation rate of **5% to 10% by weight** is standard.
3. **Seal:** Immediately seal the grow bag using an impulse sealer.
4. **Mix:** Thoroughly shake and massage the bag to break up the grain spawn and distribute it evenly throughout the sawdust substrate.

Phase 4: Incubation (Colonization)

Turkey Tail has highly aggressive mycelium. You will notice rapid growth compared to slower species like Reishi or Shiitake.

1. **Environment:** Place the sealed bags in an incubation room or on a shelf out of direct sunlight.
2. **Temperature:** Maintain a consistent room temperature between **70°F and 75°F (21°C–24°C)**.
3. **Duration:** The block should be fully colonized within **2 to 3 weeks**.
4. **Observation:** The mycelium will be a brilliant, dense white. Unlike Reishi, which forms a thick skin, Turkey Tail mycelium tends to stay relatively soft but binds the sawdust block very tightly.

Phase 5: Fruiting

Turkey Tail naturally grows in overlapping brackets or rosettes on the sides of fallen logs. To simulate this, we use a side-fruiting method.

1. **Block Preparation:** Once the block is fully colonized and consolidated, use a sterilized razor blade or utility knife to cut several small slits (about 1 to 2 inches long) or "X" shapes into the sides of the plastic bag. You do not need to remove the top of the bag.
2. **Fruiting Chamber:** Move the block into your fruiting chamber or grow tent.
3. **Parameters:**
    - **Humidity:** Maintain **85%–95% Relative Humidity (RH)**.
    - **Fresh Air Exchange (FAE):** Turkey Tail requires a lot of fresh air to form properly shaped brackets. Ensure your chamber exhausts CO2 frequently.
    - **Lighting:** Provide 12 hours of ambient, indirect light per day.
4. **Growth:** Small white pins will form at the sites of the cuts within a week or two. These will fan out into thin, multi-colored, velvety brackets (conks).

Phase 6: Harvesting and Drying

Depending on conditions, it takes about **4 to 6 weeks** from the time you cut the bag until the mushrooms are ready to harvest.

1. **When to Harvest:** Harvest when the brackets are fully extended, the concentric colored rings are clearly defined, and the bright white, actively growing outer margin begins to thin out and darken.
2. **How to Harvest:** Grab the cluster of Turkey Tail at its base (near the plastic bag) and gently twist and pull to break it free from the block, or use a sharp, sterilized knife to cut it flush against the plastic.
3. **Second Flush:** After harvesting, leave the block in the fruiting chamber and continue to maintain humidity. You can usually coax a second (and sometimes third) flush from the same cuts over the next few weeks.
4. **Drying:** Turkey Tail is leathery and cannot be eaten fresh. Place the harvested brackets in a food dehydrator at **130°F–140°F (54°C–60°C)** until they are entirely cracker-dry and brittle. Store them in an airtight container for future use in teas, tinctures, or extracts.