**LACTARIUS** – 6 Groups simplified and adapted from the Hessler and Smith (1979) book on NA species of Lactarius

System developed from a multi-access key - starts out simple enough, but as the distinctions between the various mushrooms multiplies, the permutations are complex and confusing.

The system below is one I learned originally in a Mushroom University workshop taught by Gary Lincoff. It is his adaptation of Hessler and Smith’s laid out in their book, *N.A. Species of Lactarius*.

**Dapetes**

**Albati**

**Dulces**

**Plinthogali**

**Russulares**

**Lactarius**

*Lactarius differs from other mushrooms in having a convex to vase-shaped cap on a ringless stipe.*

- Lactates on cutting or bruising.
- Like Russulas, they break easily.
- Mycorrhizal with trees.
- Amyloid reaction with Meltzer’s solution (or iodine).

In N.A., it is a large genus. There are at least 200 species and 60 varieties.

**Edibility**

Majority are acrid to peppery – some can be boiled several times with fresh water to remove the bitterness.

A few toxic ones: *L. chrysorrheus, L. torminosus, L. vinaceorufescens*,

Some choice edibles: *L. indigo; L. subpurpureus; L. chelidonium; L. volmus; L. hygrophoroides; L. corrugis; L. luteolus* – because of their meaty texture, they are good marinated in balsamic vinegar and olive oil and then broiled or grilled.

Questions to Ask When Examining *Lactarius* mushrooms (& making a dichotomous or multi-access key of your own):

Associated with what trees - conifer or deciduous, mixed forests, in sphagnum moss?
High or low elevation
Taste
Odor
Spore print color

**Cap Characteristics**

Sticky or dry
Thick or thin flesh
Glabrous or wrinkled or hairy
Zonate?
Umbo?
Margin Inrolled? Wooly?
Becoming convex to flat or vase-shaped

**Gill Characteristics**

Color? Color change from staining, bruising or age?
Crowded, close, moderately well-spaced, subdistant, distant?
Narrow, broad, thick, thin
Attached, subdecurrent, decurrent?

**Stipe Characteristics**

Thick or thin
Shape
Texture
Color
Hollow?
Staining reactions?

**Latex Characteristics**

Taste: acrid, peppery, sweet
Changes color or not
Stains or not
Volume?
Color?

**DAPETES CHARACTERS:**
Colored latex, Mild taste
(all but Lactarius indigo are associated with conifers)

*Lactarius deliciosus
Lactarius deterrimus
Lactarius salmonicolor
Lactarius chelidonium var. chelidonium
Lactarius thyinos
Lactarius indigo
Lactarius paradoxus
Lactarius subpurpureus

**ALBATI**
White fruitbody. White latex, unchanging exception)*
Acrid to peppery taste

*Lactarius piperatus
Lactarius deceptivus
Lactarius subvellereus
Lactarius subvellereus var. subdistans
Lactarius subvernalis var. cokeri
Lactarius glaucascens*

**PLINTHOGALI**
Dark brown to tan fruitbodies. White latex, often changing flesh pink. Cap dry and velutinous.

*Lactarius lignyotus
Lactarius lignytottellus
Lactarius fumosus*
**Lactarius gerardii var. subrufescens**

**DULCES**  
Dry, 'meaty' pileus. Copious latex changing and/or staining pink-red or not.  
- *Lactarius volemus*  
- *Lactarius hygrophoroides*  
- *Lactarius corrugis*  
- *Lactarius luteolus*

**RUSSULARES**  
Generally small, russula-like mushrooms. Many are fawn to red-brown. Some have distinctive odors when flesh is bruised. White to clear latex  
- *Lactarius hibbardiae*  (Spelled *L. hibbardae* in field guides)  
- *Lactarius glysiosmus*  
- *Lactarius griseus*  
- *Lactarius quietus var. incanus*  
- *Lactarius hepaticus*  
- *Lactarius peckii*  
- *Lactarius oculatus*  
- *Lactarius rufus*

**LACTARIUS**  
Latex white to whey-clear. Latex unchanging or changing to yellow, purple, pink-orange, olive or grey. Caps viscid, zonate or with cottony margin  
- *Lactarius zonarius*  
- *Lactarius psammicola*  
- *Lactarius torminosus*  
- *Lactarius controversus*  
- *Lactarius vinaceorufescens*  
- *Lactarius chysorheus*  
- *Lactarius sordidus*  
- *Lactarius atroviridis*  
- *Lactarius mucidus*

The above division of *Lactarius* species into 6 major groups is significantly more refined than presented here. There are also other ways of organizing this information. I recommend you consider buying the following book if interested in learning more about *Lactarius*. Bessette, Harris and Bessette, *Milk Mushrooms of North America* (2010)

They organize *Lactarius* into 4 Groups:

**A. Latex colored** a). on immediate exposure to air or b). within 5 minutes of exposure.

**B. Strong Odors** of crushed flesh: fruity, spicy, fragrant, aromatic, maple sugar, coconut, anise, geranium, apples, raw pumpkin, ripe crushed blackberries, or lemony; Odor spermatic, alkaline, disagreeable. (Group A - 47) *L. volemus, L. hyzingus, L. pyrogalus*

**C. Latex color unchanging** or not changing **within 5 minutes**, **taste mild within 2 minutes**. (Group B - 38)
Cap white, buff, yellow, orange, ochraceous to brownish-ochre, pale yellow-cinnamon, pale pinkish cinnamon to pale rosy cinnamon, red lilac, grey or brown; margin bearded or stem scrobiculate; or latex slowly changing color or staining or drying tissues a different color. (Group C - 46) L. atriviridis, L. turpis, L. deceptivus, L. controversus, L. psammicola, L. torminosus, L. affinis, L. hyzingus, L. lignyotus, L. maculatus

D. Cap white, buff, yellow, orange, ochraceous to brownish-ochre, pale yellow-cinnamon, pale pinkish cinnamon to pale rosy cinnamon, red lilac, grey or brown; but without bearded margin, scrobiculate stem, or latex changing color, staining or drying tissues. (Group D is small w 16) L. rufus, L. peckii, L. oculatus, L. cinereus, L. griseus, L. hepaticus

NOTE: While it may have been assumed by professional as well as amateur mycologists over the years that species ascribed to any division are genetically related to each other more closely than they are to species in other divisions, we have no confirmation of this assumption. In N.A., mycologists are just beginning to apply DNA sequencing to some Lactarius species. Whether knowing how closely the different species are to one another will help us learn them any better is an open question. Find your way to help you learn to recognize the species we have in the northeast.

You can start your dichotomous keys any number of ways: by focusing on, for example, all cool colored Lactarius vs all warm colored Lactarius.

All bitter to peppery-tasting Lactarius vs. all mild tasting Lactarius

All glabrous Lactarius vs. pubescent to hairy Lactarius.

All Lactarius associated with deciduous vs. those associated with coniferous trees.

All Lactarius associated with both deciduous and coniferous trees.

All Lactarius growing under birch vs. all Lactarius associated with oaks.

All Lactarius with white milk vs. all Lactarius with clear or whey-like milk.

All Lactarius that bruise a different color vs. those that don’t.

All Lactarius that stain vs. those that don’t.

All Lactarius with zonation on the cap.

All Lactarius with scrobiculate stems.

ETC., etc., etc.

You can create your own multi-access key listing a set of field characters and see what system works best for you to understand and differentiate one species from another.