In the recent years, many research articles focused on endocrine disrupting compounds in the environment. Some of these compounds are listed in a group named brominated flame retardants. However, only few articles investigated endocrine activity of several „new“ brominated flame retardants. These chemicals such as 1,2-bis(2,4,6-tribromophenoxy)ethane (BTBPE) or bis(2-ethylhexyl) tetrabromophthalate (TBPH) are newly used due to ban of some previously most produced brominated flame retardant mixes. In this study, we used two recombinant yeast screens to measure estrogenic, androgenic, antiestrognic and antiandrogenic activities of some alternative brominated flame retardants. We also used ligninolytic fungi to investigate biodegradation of these compounds. Our results suggest, that 2,4,6-tribromophenol (TBP) may be a new environmental endocrine disruptor. This substance showed antiestrogenic and antiandrogenic activity in our tests. 1,2-bis(2,4,6-tribromophenoxy)ethane (BTBPE) had certain antagonistic activity too. In the biodegradation experiment, only three compounds showed significant degradation during the test period. No biodegradation have been observed for other compounds. In this study, we applied gas chromatography with mass spectrometry to analyze these „new“ flame retardants. Method for gas chromatography and derivatization of TBP have been developed and documented.