

Essential oil	Cited research	Method of research	Method of delivery	Influenza strain(s) used	Mechanism identified	Timing of action
<i>Cinnamomum zeylanicum</i> (cinnamon) leaf oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of NA (liquid) and HA activity (liquid and vapor)	Not stated
<i>Citrus bergamia</i> (bergamot) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of HA activity by vapor and liquid application	Not stated
<i>Cymbopogon flexuosus</i> (lemongrass) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of HA activity (liquid)	Not stated
<i>Cynanchum stauntonii</i> (Bai Qian) oil	Zai-Chang et al 2005	<i>In vitro, in vivo</i>	Liquid media, injected into mice	H1N1 (1 strain)	Not stated, measurement of weight change and plaque numbers	Not stated
<i>Eucalyptus globulus</i> (blue gum) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor via passive diffusion	H1N1 (1 strain)	Inhibition of HA activity by vapor and liquid (only at high concentration of EO) application	Not stated
<i>Eucalyptus polybractea</i> (blue mallee) oil	Usachev et al 2013	<i>In vitro</i>	Vapor via nebulizer (active diffusion) and passive diffusion	H11N9 (1 strain)	Not stated	Not stated
<i>Lavandula angustifolia</i> (lavender) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of HA activity by liquid (only at high concentration of EO) application	Not stated
Melaleuca alternifolia (tea tree) oil	Garozzo et al 2009, Garozzo et al 2011, Usachev et al 2013, Li et al 2013, Reviewed in Setzer 2016	<i>In vitro</i>	Liquid media, vapor via nebulizer (active diffusion) and passive diffusion	H11N9 (1 strain), H1N1 (2 strains)	Inhibits uncoating in endosomes by interfering with acidification (Garozzo et al 2013); may inhibit entry into cell by changing HA conformation (Li et al 2013)	0-2 hrs post-infection (Garozzo et al 2011) ("early")
<i>Melissa officinalis</i> (lemon balm) oil	Pourghanburi et al 2016	<i>In vitro</i>	Liquid media	H9N2 (1 strain)	May interfere with the virus binding to the host cell receptors (mechanism is different than the mechanism for treating HSV)	Not stated
<i>Mosla dianthera</i> (miniature beef steak plant) oil	Wu et al 2012	<i>In vivo</i>	Ingested by mice	H1N1 (1 strain)	Viral replication reduced; lung inflammation and damage reduced due to improvement in host immunity as measured by cytokine levels	Not stated
<i>Pelargonium graveolens</i> (geranium) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of HA activity by vapor (only at 30 minute exposure) and liquid (only at high concentration of EO) application	Not stated
<i>Syzygium aromaticum</i> (clove bud) oil	Dai et al 2013	<i>In vitro</i>	Liquid media	H1N1 (3 strains), H3N2 (2 strains), H9N2 (2 strains), H5N1 (1 strain)	Inhibits autophagy, which impairs viral replication and cytokine storm caused by virus; inhibits cell death	1-5 hr post-infection ("early to mid")
Thymus vulgaris (thyme) oil	Vimalanathan and Hudson 2014	<i>In vitro</i>	Liquid media, vapor	H1N1 (1 strain)	Inhibition of HA activity (liquid)	Not stated